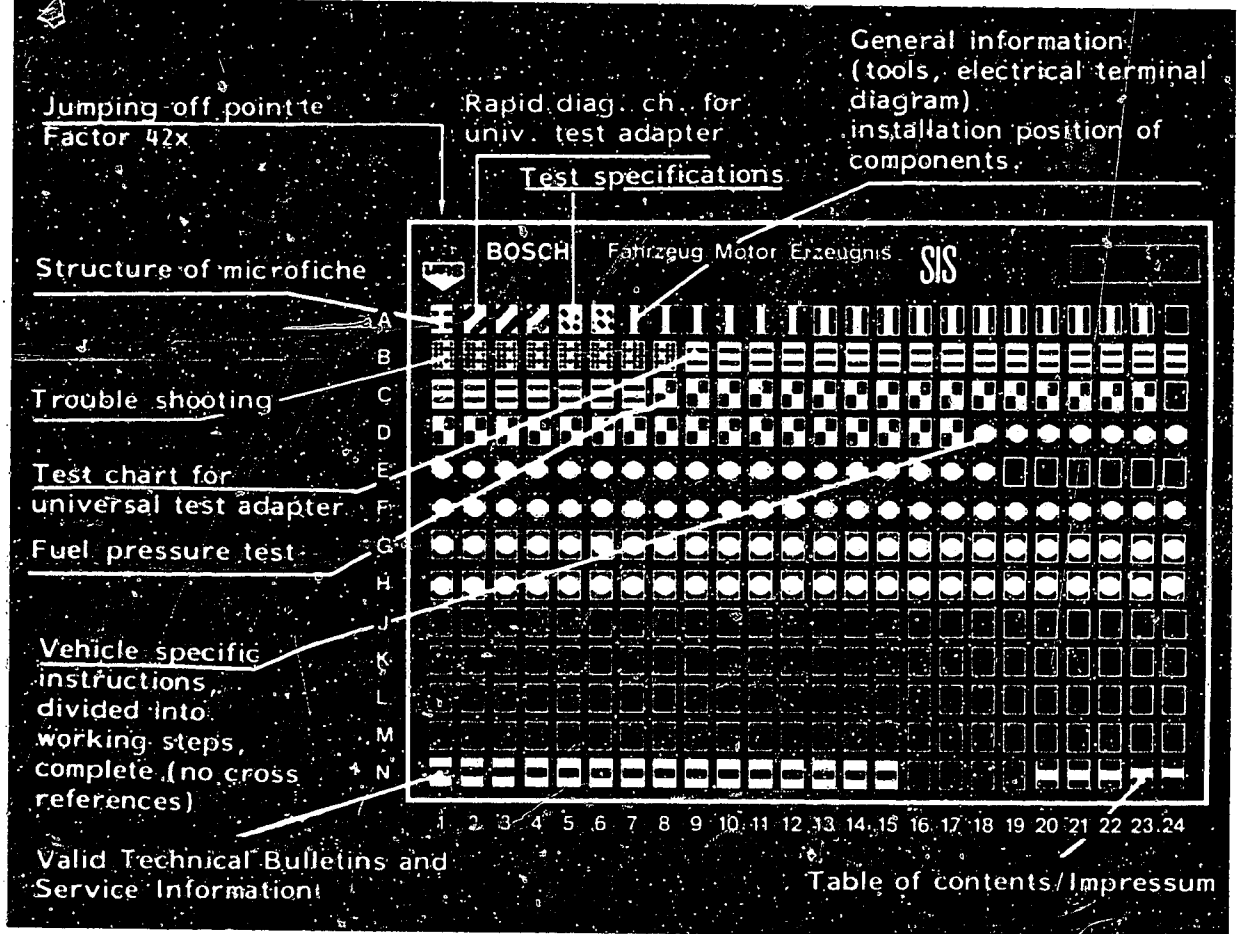


Structure of microfiche



1. Read from left to right
2. Title of microfiche (appears on each coordinate)

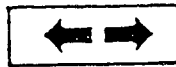
E16	Product/component/test step
	Vehicle/engine

Coordinate

3. Limits of section



Beginning



Mid-section



End



One-page section

4. Purely vehicle-specific passages in the text are marked with a vertical bar.
5. Reference to relevant working steps in the test specifications, e.g. coordinate C6.

C6

A1

Trouble-shooting program



Rapid diagnosis chart for universal test adapter

The following rapid diagnosis chart makes it possible for the experienced L-Jetronic expert to quickly check the electrical part of the system using the universal test adapter.

The rapid diagnosis chart contains the following information:

- Sequence of test steps
- Position of V and Ω program switches
- Notes on how to operate the universal test adapter or other components
- Test specifications for motortester and multimeter
- Reference to coordinates of the respective detailed testing and trouble-shooting program.

If detailed instructions and information are necessary, always proceed in accordance with the trouble-shooting charts starting on Coordinates B1/B2.

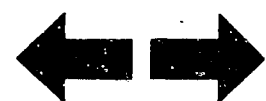


Rapid diagnosis chart for universal test adapter

<u>Test step</u>	<u>Switch position</u>		<u>Measurement</u>	<u>Remarks</u>	<u>Test specifications (reading)</u>	<u>For trouble shooting see coordinates</u>
	V	Ω				
1	5	-	Voltage pulses from ignition coil term. 1	Shift gear to neutral, start.	Ignition pulses on oscilloscope	B 11
2	6	-	Voltage from control relay term. 87	Shift gear to neutral, start.	8 ... 15 V	B 13
3	7	-	Voltage from starting motor term. 50	Shift gear to neutral, start.	8 ... 15 V	B 15
4	↓	11	Resistance of temperature sensor NTC I in air-flow sensor term. 8	---	100 ... 200 Ω	B 17
5	↓	12	Resistance of potentiometer in air-flow sensor term. 7	Deflect air-flow sensor flap as far as it will go.	60 ... 1000 Ω	B 19
6	↓	13	Resistance of temperature sensor NTC II term. 10 (engine temperature)	---	30 Ω ... 30 k Ω (depends on temperature)	B 21
7	↓	14	Resistance to ground - output stage term. 13	---	0 ... 10 Ω	B 23
8	↓	16	Resistance of idle contact in throttle-valve switch term. 2	Accelerator in rest position Bridge term. 2 and 2a in base for time-delay relay.	0 ... 10 Ω	C 1
9	↓	17	Resistance of full-load contact in throttle-valve switch term. 3	Accelerator in full-load position	0 ... 10 Ω	C 3
10	↓	18	Resistance of all 4 parallel-connected injection valves term. 12	---	+ 20°C: 7.0...9.5 Ω + 80°C: 7.2...10.0 Ω	C 5

A3

Rapid diagnosis chart for univ.test adapt.
Peugeot 505 GTI



A4

Rapid diagnosis chart for univ.test adapt.
Peugeot 505 GTI



TEST SPECIFICATIONS

- Idle speed

Manually-shifted
transmission:

700...800 min⁻¹

Automatic trans-
mission:

850...950 min⁻¹

- CO concentration

With engine at normal
operating temperature
Europe version:

0.5...1.5% by vol.

- Fuel pressure

2.3...2.7 bar

- Fuel delivery of
electric fuel pump:

min. 700 cm³/30 s

- Solenoid-operated injection valve

Electrical internal
resistance at +20°C:

15.0...17.5 Ω

- Temperature sensor II
(engine)

Electrical internal
resistance at
ambient temperature
(+15°C...+30°C):
with engine at op.
temp.

1.45...3.3 kΩ

(approx. +80°C):

280...360 Ω

See equipment and Autodata microfiches for settings for
ignition, valve clearance and other engine data.

B7

B5

B7

B7

B9

A5

Test specifications

Peugeot 505 GTI



- Auxiliary-air device

B5

Electrical internal
resistance

30...65 Ω

- Air-flow sensor

B5

Resistance between:

Term. 8 and term. 5:	340... 450 Ω
Term. 7 and term. 5:	60...1000 Ω
Term. 8 and term. 9:	160... 300 Ω
Term. 9 and term. 5:	500... 760 Ω

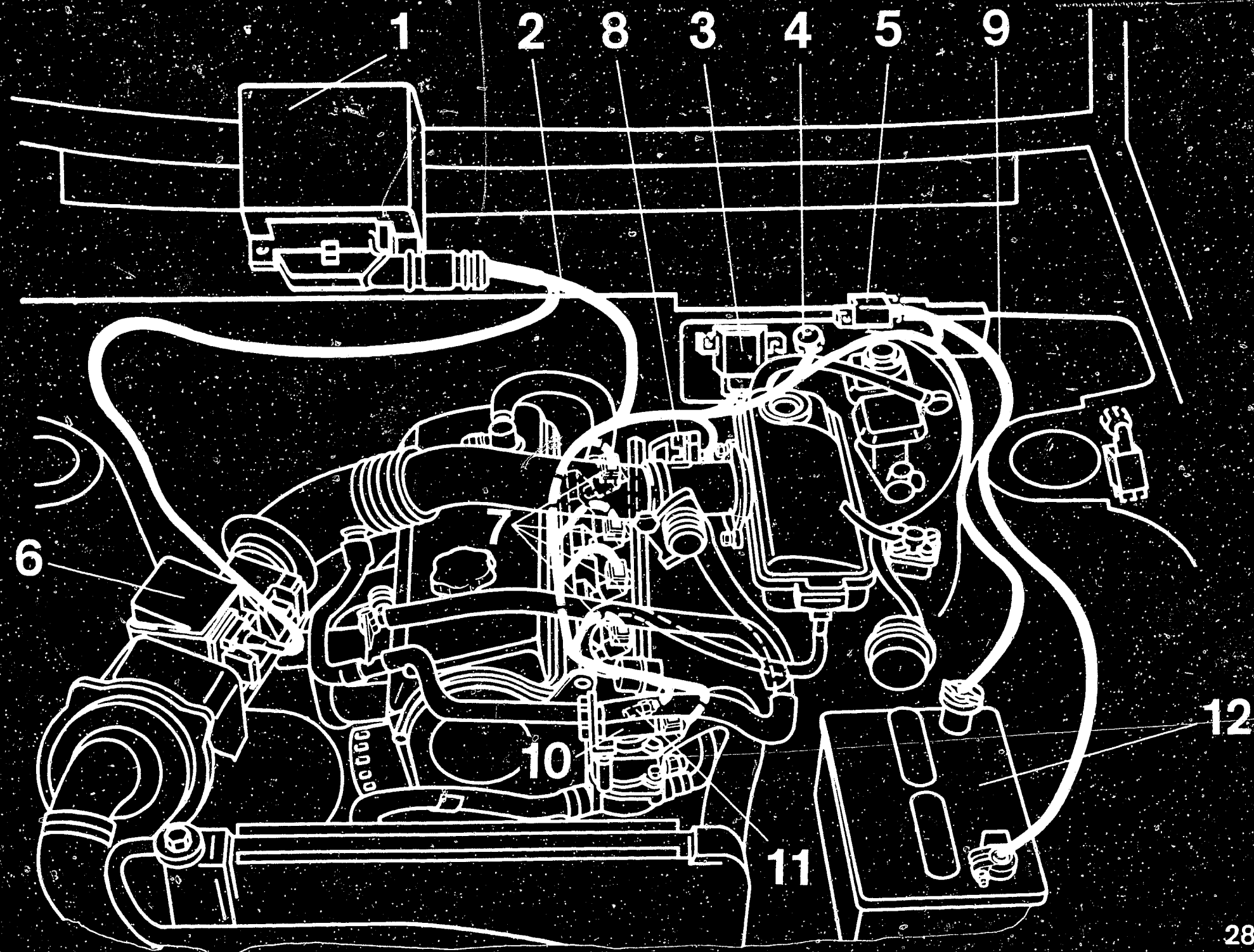
See equipment and Autodata microfiches for settings
for ignition, valve clearance and other engine data.

A6

Test specifications

Peugeot 505 GTI





280 / 0663

ELECTRICAL WIRING DIAGRAM

1 = Control unit
2 = Jetronic wiring harness
3 = Time-delay relay
4 = Central ground

5 = Control relay
6 = Air-flow sensor
7 = Injection valves
8 = Throttle-valve switch

9 = Vehicle wiring harness
10 = Auxiliary-air device
11 = Temperature sensor
12 = Battery

A9

Electrical wiring diagram
Peugeot 505 GTI



A10

Electrical wiring diagram
Peugeot 505 GTI



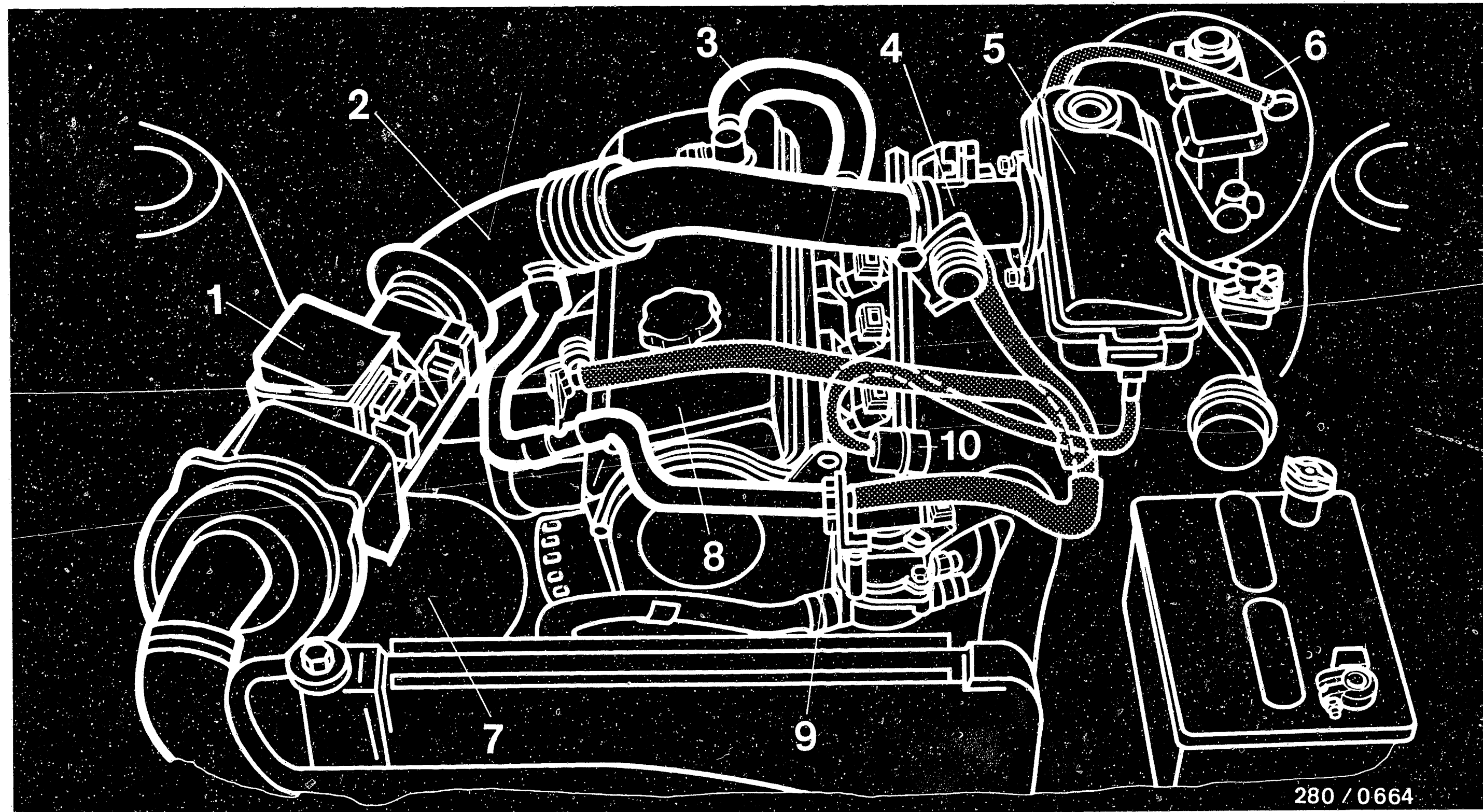


DIAGRAM OF AIR AND FUEL LINES

• Diagram of air lines

- Atmospheric pressure
- == Intake manifold pressure

- 1 = Air-flow sensor
- 2 = Air-guide hose
- 3 = Crankcase breather
- 4 = Throttle-valve assy.

- 5 = Intake manifold
- 6 = Brake servo assist unit
- 7 = Air filter
- 8 = Valve cover
- 9 = Auxiliary-air device
- 10 = Pressure regulator

A11

Diagram of air and fuel lines

Peugeot 505 GTI

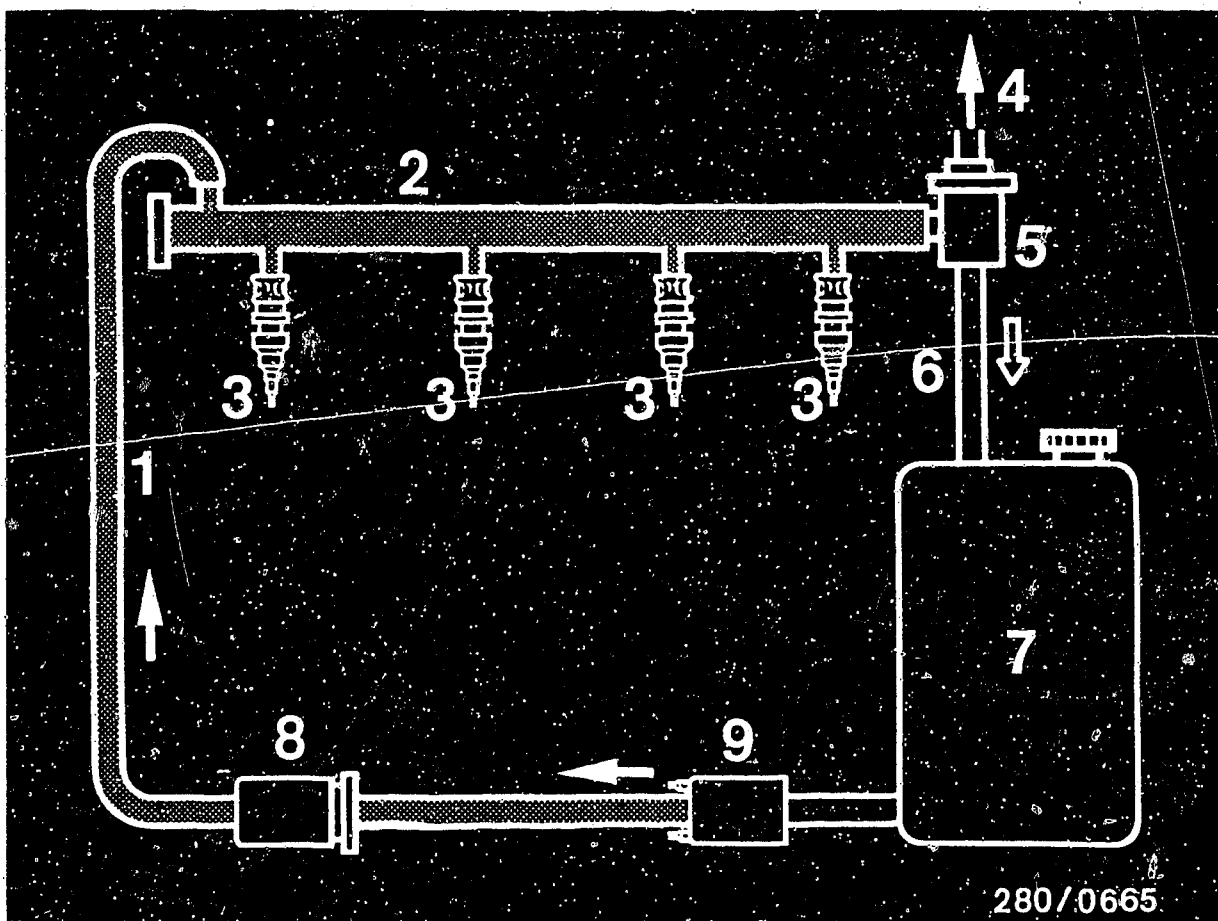


A12

Diagram of air and fuel lines

Peugeot 505 GTI





● Diagram of fuel lines

— Pressureless

▨ Fuel pressure

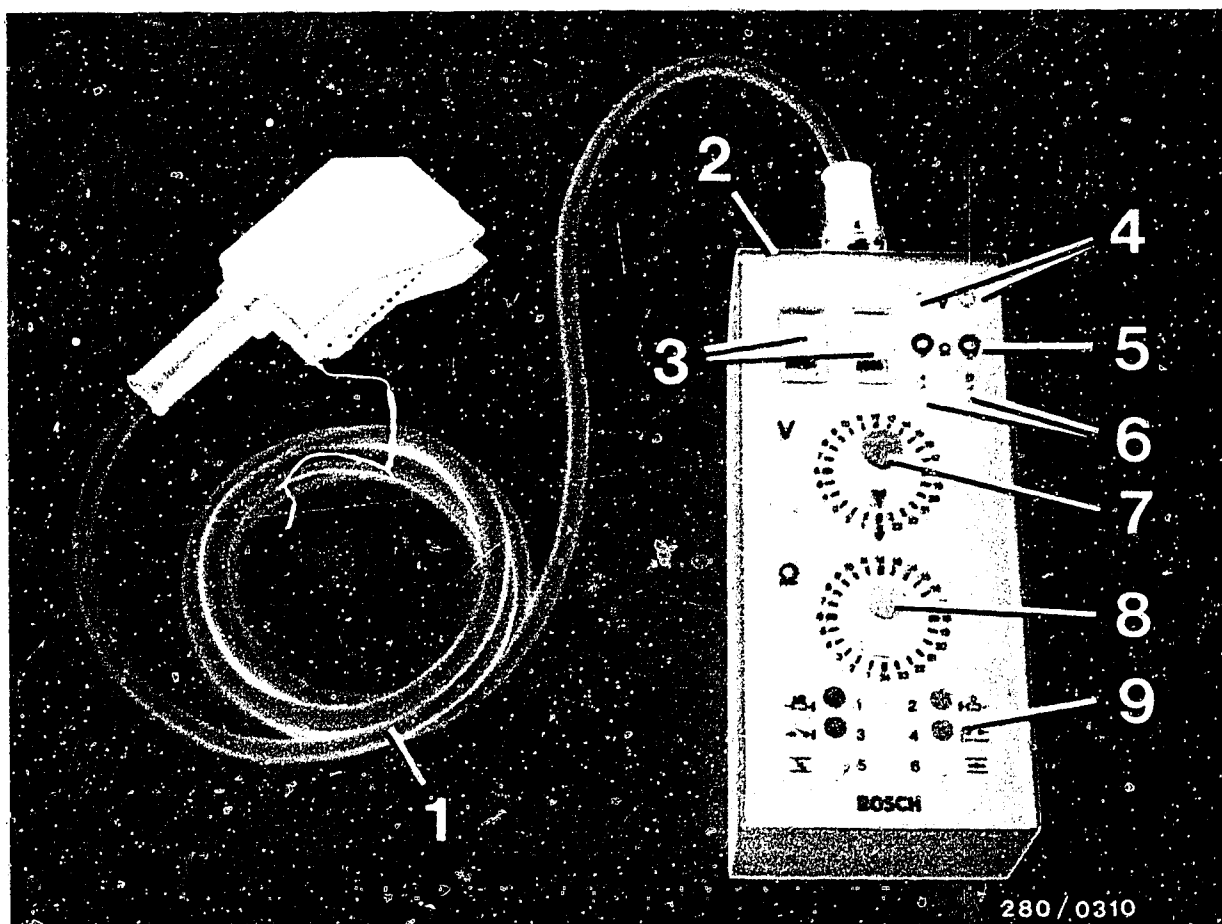
- 1 = Delivery line
- 2 = Fuel-distribution pipe
- 3 = Injection valves
- 4 = Intake manifold pressure connection
- 5 = Pressure regulator
- 6 = Return line
- 7 = Fuel tank
- 8 = Fuel filter
- 9 = Electric fuel pump



TEST EQUIPMENT AND TOOLS

<u>Description</u>	<u>Designation</u>	<u>Part No.</u>
Universal test adapter	ETT 018.01	0 684 101 801
Adapter lead		1 684 463 123
Motortester	e.g. MOT 002.00 MOT 300 MOT 400	0 684 000 200 0 684 000 300 0 684 000 400
Test lead		1 684 463 093
Exhaust-gas analyzer Calibrated	e.g. ETT 008.00 ETT 008.04 ETT 008.05	0 684 100 800 0 684 100 804 0 684 100 805
Pressure measuring instrument e.g. pressure gauge Pressure tester Pressure tester (no longer available) Connecting part	Quality class 1.0 Measuring range 6 bar 0.1 bar divisions	1 687 231 154 KDJE-P 100 KDEP 1034 KDJE-P 100/14
Electrics tester or multimeter e.g.	ETE 014.00 Philips Miselco Chinaglia	0 684 101 400 PM 2517 X Master 50K Cortina
Hexagon-socket-screw key	SW 5	
Injection valve		0 280 150 209
Use suitable commercially available tools for fitting and removing the idle CO anti-tamper device on the air- flow sensor.		

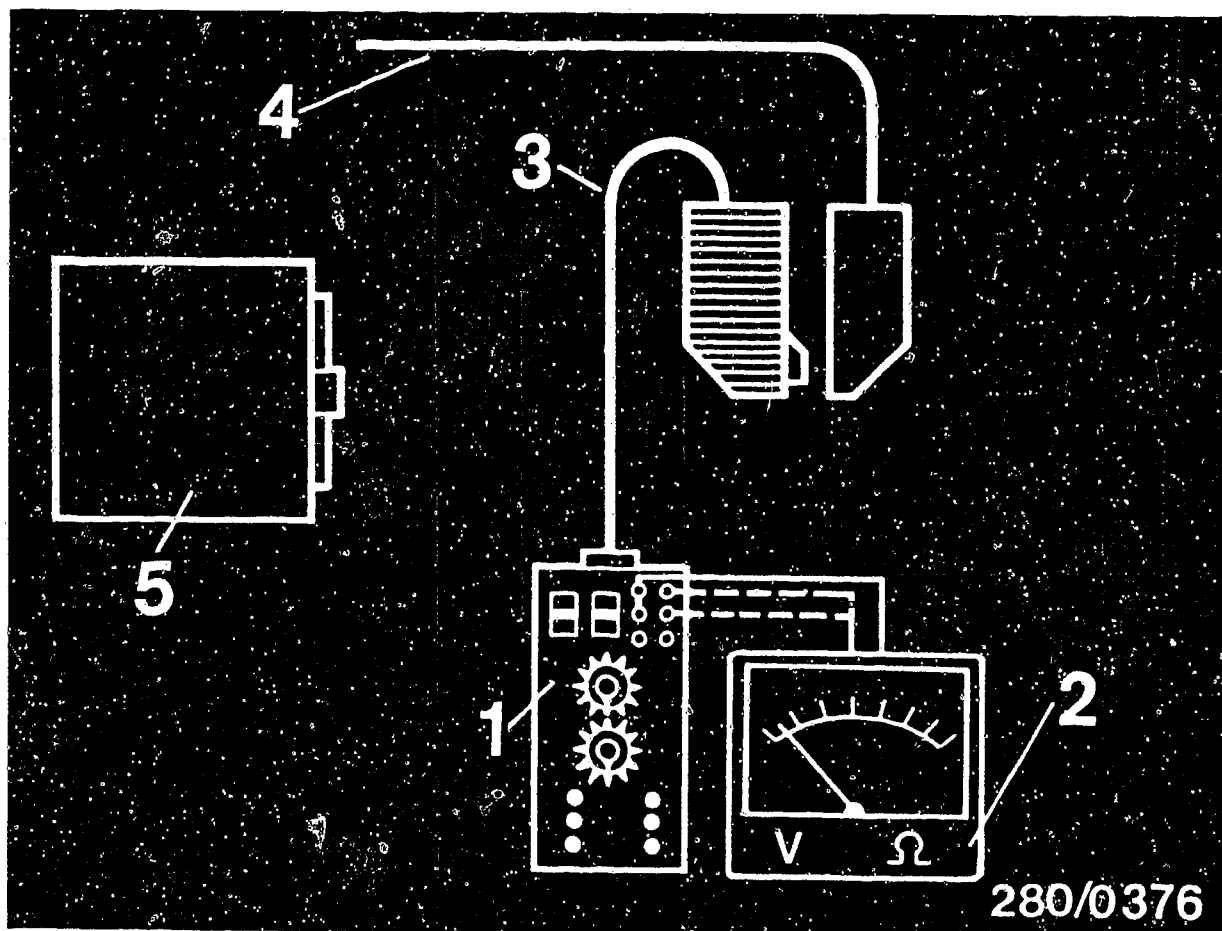




Universal test adapter with adapter lead for LE-Jetronic

- 1 = Adapter lead (part No.: 1 684 463 123)
- 2 = Universal test adapter (part No.: 0 684 101 801)
- 3 = Test wells (for motortester)
- 4 = Test sockets (for voltage measurement)
- 5 = Test sockets (for resistance measurement)
- 6 = Test sockets (not yet occupied)
- 7 = Program switch "V"
- 8 = Program switch "Ω"
- 9 = Button panel (not occupied for LE-Jetronic)





1 = Universal test adapter

2 = Multimeter

3 = Adapter lead (LE-Jetronic)

4 = Jetronic wiring harness

5 = LE-Jetronic control unit

Connection:

Remove control-unit plug of Jetronic wiring harness from control unit and connect to plug of adapter lead.

Caution:

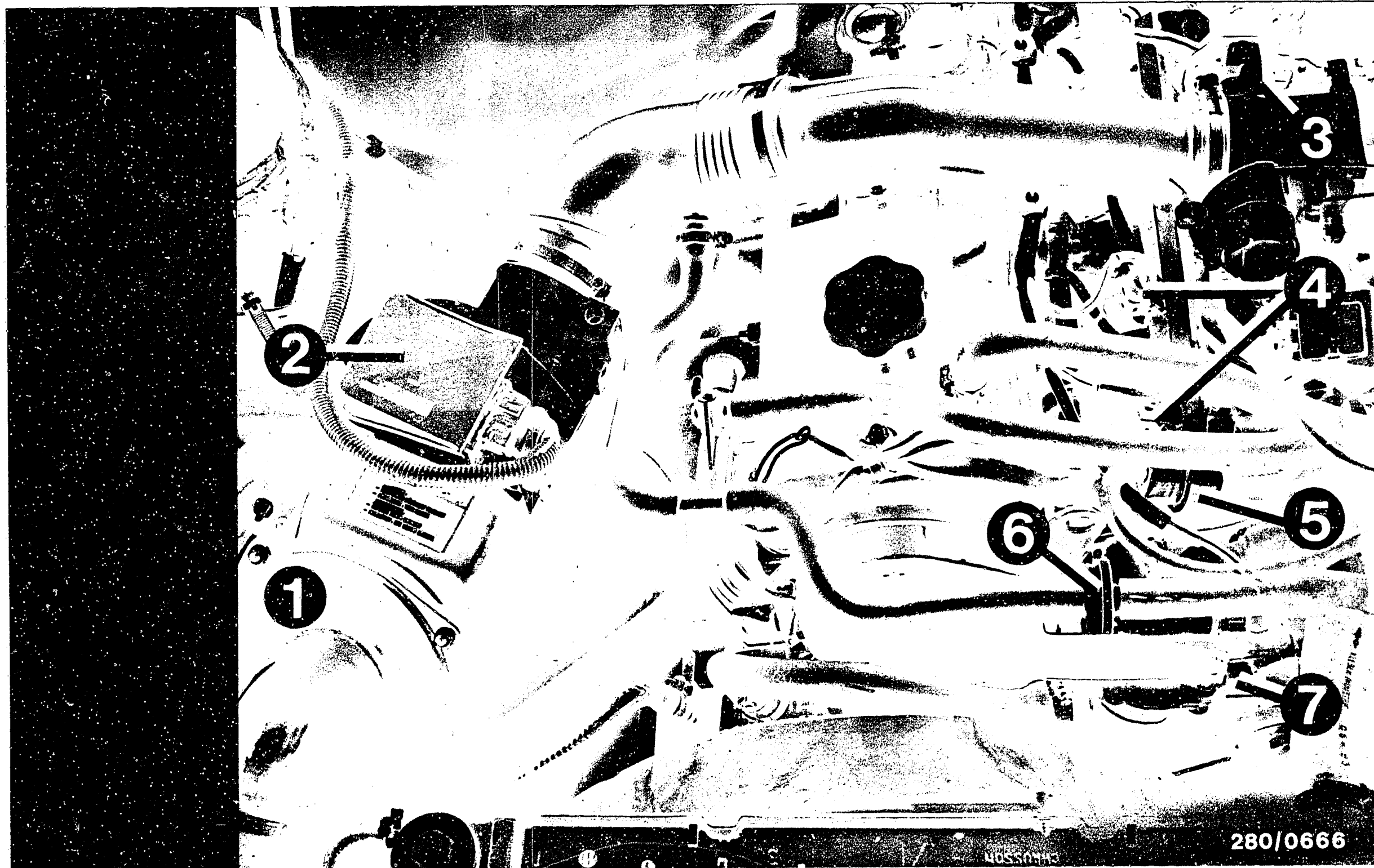
Connect and disconnect the universal test adapter only with the ignition off:

Testing:

For testing, connect a multimeter with R_i min. 20 k Ω /V to the test adapter.

It is also possible for the signal from term. 1 of the ignition coil to be measured with a motortester via the special input.





280/0666

INSTALLATION POSITION OF COMPONENTS

● Arrangement of components on engine

1 = Air filter

2 = Air-flow sensor

3 = Throttle-valve switch

4 = Injection valves

5 = Pressure regulator

6 = Auxiliary-air device

7 = Temperature sensor II
(concealed under auxiliary-
air device)

A17

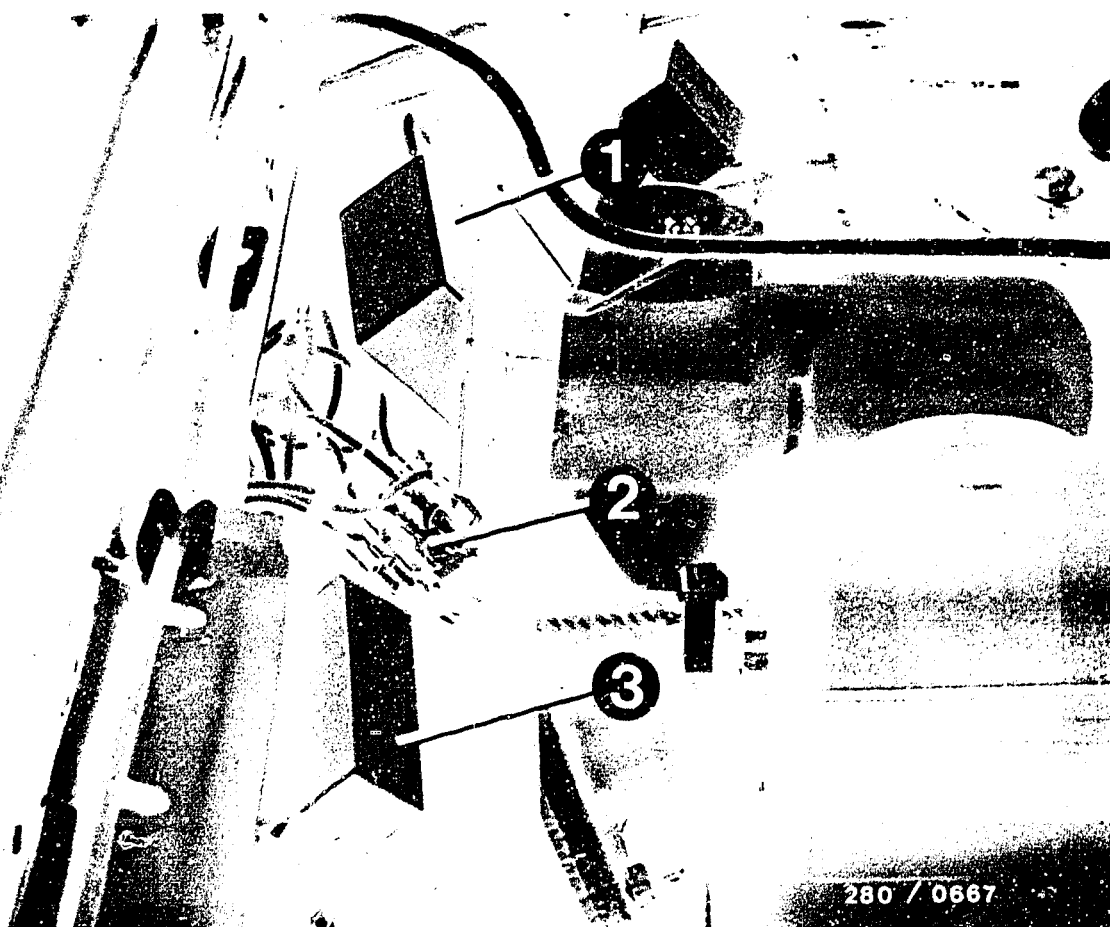
Installation position of components
Peugeot 505 GTI



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Installation position of components
Peugeot 505 GTI

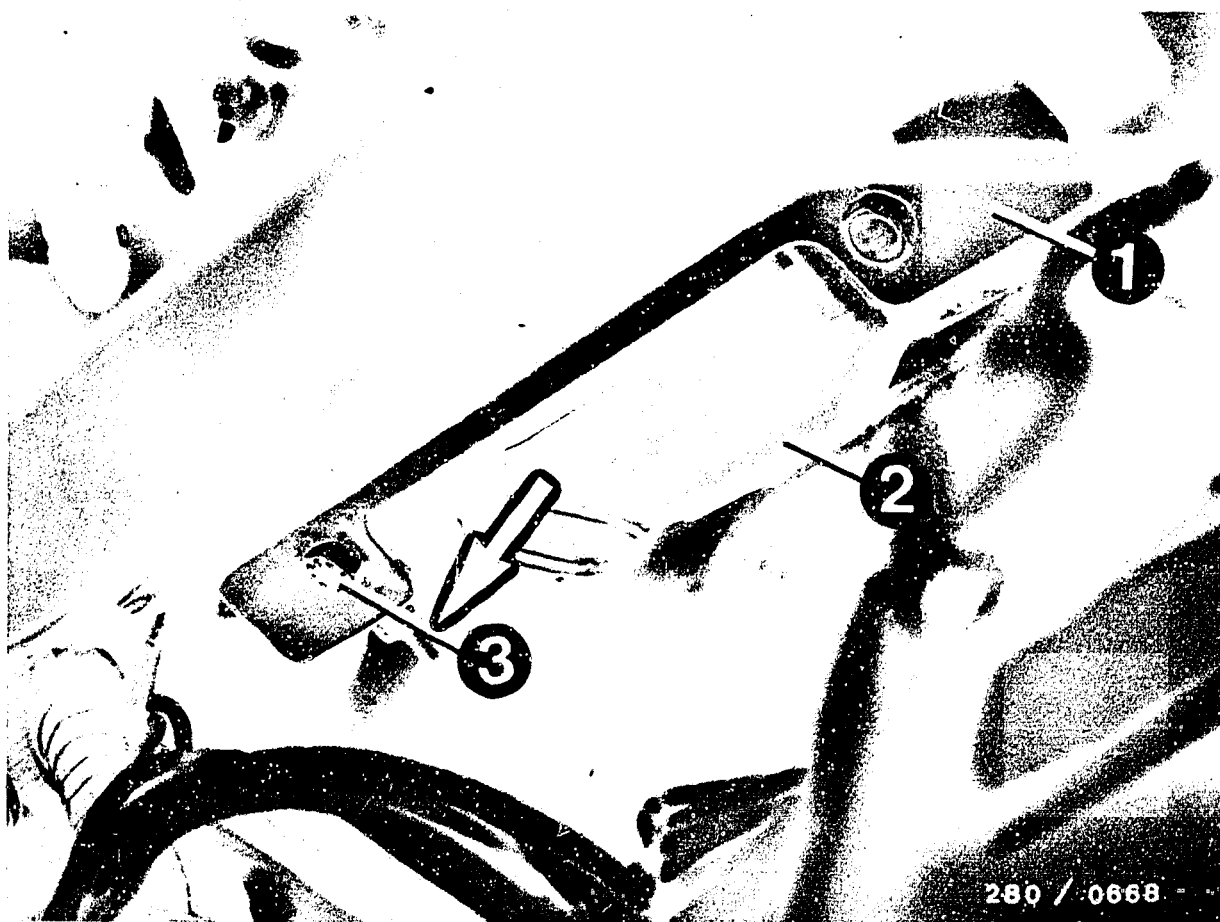




- 1 = Control relay
- 2 = Central ground
- 3 = Time-delay relay

For testing, the holding plate of the 3 components with 2 screws must be loosened and hinged away from the firewall.





- 1 = Control unit
- 2 = 25-pin control-unit plug
- 3 = Fastening screws

● Control unit in passenger compartment

All indications "right" and "left" refer to the forward direction of travel.

The control unit is in the passenger compartment, front passenger side, above the glove compartment.

Hinge glove compartment downward, unhook lighting at the front and pivot toward the rear.

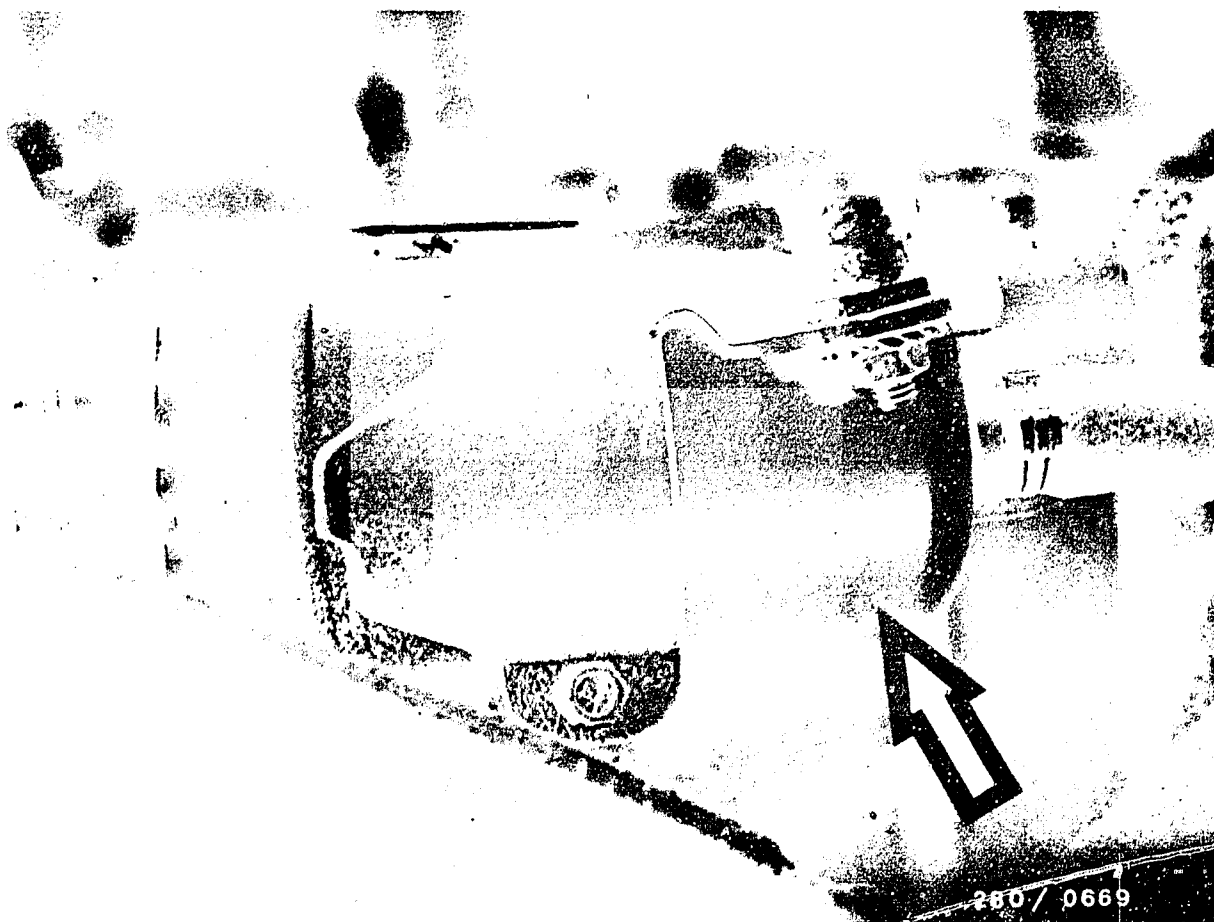
To connect the universal test adapter, remove the control-unit plug (25-pin). To do this, press the detent in the direction of the arrow.

A20

Installation position of components

Peugeot 505 GTI





- Fuel-supply components

The electric fuel pump (arrow) is mounted on a bracket on the underside of the vehicle, behind the differential.





The fuel filter (arrow) is on the left-hand side in front of the rear axle.



Important general information

- Never start engine without securely connected battery.
- Never use a starting aid with more than 16 V or a fast charger for starting.
- Never disconnect battery from vehicle electrical system with engine running.
- When fast charging, disconnect battery from vehicle electrical system.
- Remove control unit at temperatures above 80°C (paint-drying installation).
- Ensure that all connectors of wiring harness are secure.
- Never connect or disconnect control-unit plug with the ignition on.
- When testing compression, cut the power supply by disconnecting the control relay. This ensures that the power supply is cut to the LE-Jetronic and therefore also to the injection valves. Undesired injecting is thus prevented.
- The LE-Jetronic control unit must be removed before performing electrical welding work (e.g. spot welding).
- When using the following trouble-shooting program it is assumed that the engine is in proper working order and that the ignition is correctly set. The electrical system must be checked and, if necessary, repaired.

In order to be able to perform the test operations described in this manual and to assess the components, you should be familiar with the L-Jetronic and how it works. The essential points regarding the construction and operation of the L-Jetronic are described in Technical Instruction VDT-U3/3.

The LE version of the L-Jetronic is described in Technical Bulletin, New Product, VDT-I-280/6.

- If an alarm system is installed, note the information on microcard ALL-500.



TROUBLE-SHOOTING CHARTS

The following trouble-shooting charts are designed to enable workshop employees, using the universal test adapter with adapter lead (1 684 463 123) and other suitable test equipment, to quickly locate causes of trouble on the LE-Jetronic. Depending on the level of knowledge and experience of the mechanic, a choice can be made between the following procedures:

- Detailed, step-by-step trouble-shooting chart
For employees with little practice or experience on vehicles equipped with LE-Jetronic.
There is a complete trouble-shooting program for each customer complaint.
- Direct, pin-pointed trouble-shooting chart
For trained, experienced employees who have had a great deal of practice on vehicles equipped with LE-Jetronic.
The trouble-shooting for each customer complaint starts with a specific component within the trouble-shooting program.

B3**B5**

Both trouble-shooting charts begin by checking the electrical/electronic part of the LE-Jetronic with the aid of the universal test adapter with adapter lead. In this way, the wiring harness with the connected components is soon checked for proper electrical operation and faults are quickly located.

If no fault is found using the universal test adapter, it is necessary to test the fuel pressure.

If no fault is found, continue trouble-shooting with the detailed or the direct trouble-shooting chart.

B1

Trouble-shooting chart

Peugeot 505 GTI

**B2**

Trouble-shooting chart

Peugeot 505 GTI



1. Detailed, step-by-step trouble-shooting chart for the complete trouble-shooting program

- Test with universal test adapter with adapter lead 1 684 463 123 and motortester or multimeter

This test must come at the beginning of the test program and must be performed from beginning to end (Coordinates B 9...C 7).

- Fuel-pressure test with pressure gauge

This test must come immediately after the test with the universal test adapter and must be performed from beginning to end (Coordinates C 8...C 19).

- Trouble-shooting according to customer complaints (symptoms of trouble)

The table below contains possible symptoms of trouble and gives the first coordinate of the relevant detailed trouble-shooting program in the column of the right.

The trouble-shooting program consists of logically ordered test procedures for all individual components of the LE-Jetronic. If, after completing the trouble-shooting program for an assumed trouble, the fault has not been detected or remedied, take a new symptom of the trouble and work through another program.

<u>Customer complaints</u> (fault symptoms)	Electrical test with universal test adapter	Fuel pressure test with pressure gauge	Trouble-shooting program
1. Starting motor operates, engine fails to start or starts only with great difficulty	B 9	C 8	C 20
2. Engine starts but then dies	B 9	C 8	D 13
3. Uneven idle/incorrect idle speed	B 9	C 8	D 21
4. Poor throttle take-up	B 9	C 8	F 1
5. Engine missing under all operating conditions	B 9	C 8	F 17
6. Fuel consumption too high	B 9	C 8	G 15
7. Maximum engine power/top speed not reached	B 9	C 8	H 1
8. Idle speed and CO concentration too low or too high	B 9	C 8	H 15

B3

Trouble-shooting chart

Peugeot 505 GTI



B4

Trouble-shooting chart

Peugeot 505 GTI



2. Pin-pointed direct trouble-shooting

- Electrical test with universal test adapter with adapter lead 1 684 463 123 and motortester or multimeter

The test with the universal test adapter must come at the beginning of the test program and must be performed from beginning to end (Coordinates B 9...C 7).

- Fuel pressure test with pressure gauge

The fuel pressure test must come immediately after the test with the universal test adapter and must be performed from beginning to end (Coordinates C 8...C 19).

- Trouble-shooting according to customer complaints

The table below contains various symptoms of trouble with several possible causes of the trouble in each case. The coordinate reference field indicates the first coordinate of the test procedure for the respective LE-Jetronic component. If, after testing the individual components, the fault has not been detected or remedied, choose a new symptom of the trouble.

Customer complaints (fault symptoms)

1. Starting motor operates, engine fails to start or starts only with great difficulty								
2. Engine starts but then dies								
3. Uneven idle/incorrect idle speed								
4. Poor throttle take-up								
5. Engine missing under all operating conditions								
6. Fuel consumption too high								
7. Maximum engine power/top speed not reached								
8. Idle speed and CO concentration too low or too high								
<u>Cause</u> (component fault)								
B9	B9	B9	B9	B9	B9	B9	B9	Fault in electrics, test with universal test adapter
C8	C8	C8	C8	C8	C8	C8	C8	Fault in fuel supply. Pressure regulator defective. Control relay defective. Electric fuel pump not operating. Fuel-pressure test.
D5	D15		F5					Auxiliary-air device not opening
		E3					H19	Auxiliary-air device not closing
D17		E13	F7	F19	G21	H9	H21	Air-flow sensor defective; potentiometer test (noise test)
D9	D17							Hot starting problems; air-intake system or fuel system leaking

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Trouble-shooting chart

Peugeot 505 GTI

**B6**

Trouble-shooting chart

Peugeot 505 GTI



Customer complaints (fault symptoms)

1. Starting motor operates, engine fails to start or starts only with great difficulty								
2. Engine starts but then dies								
3. Uneven idle/incorrect idle speed								
4. Poor throttle take-up								
5. Engine missing under all operating conditions								
6. Fuel consumption too high								
7. Maximum engine power/top speed not reached								
8. Idle speed and CO concentration too low or too high								
Cause (component fault)								
C22								Cold-start control defective
D9	D17	E15	F13			H11	H23	Air-intake system leaking
		E7		G9	G17			Injection valves defective; connect test lead
				G1		H7		Delivery of electric fuel pump too low
		D23	F3	G3				Throttle valve not closing (test overrun cutoff)
						H3		Throttle valves not opening fully
		D23	F3	G3		H5		Throttle-valve switch defective (adjustment)
		E1	F15		G23		H17	CO exhaust-gas setting too rich, idle adjustment
		E1	F15	G7			H17	CO exhaust-gas setting too lean, idle adjustment, burbling
				G3				Control unit defective

B7

Trouble-shooting chart

Peugeot 505 GTI



B8

Trouble-shooting chart

Peugeot 505 GTI



TEST CHART FOR UNIVERSAL TEST ADAPTER

with connected adapter lead 1 684 463 123 for LE-Jetronic

- Before testing with the universal test adapter, check all multiple plug connectors for loose contacts.
Clean contacts if dirty or corroded.
- Watch for blade receptacles which have been pushed back.
If necessary, bend back the latching lug and press the blade receptacle as far as it will go into the plug housing; latching lug locks into position.
- Suspicion of line breaks in case of kinking and pinching.

The universal test adapter tests only the peripherals of the electrics (without control unit).

Remove control-unit plug of Jetronic wiring harness from control unit and connect to plug of adapter lead (ignition must be off).

To make measurements, connect a multimeter to the universal test adapter for measuring voltage and resistance, as well as a motortester.

The individual test steps are selected by means of two program switches (one for voltage measurements and the other for resistance measurements). Each program switch has 24 test positions. However, only some of these are occupied for the LE-Jetronic.

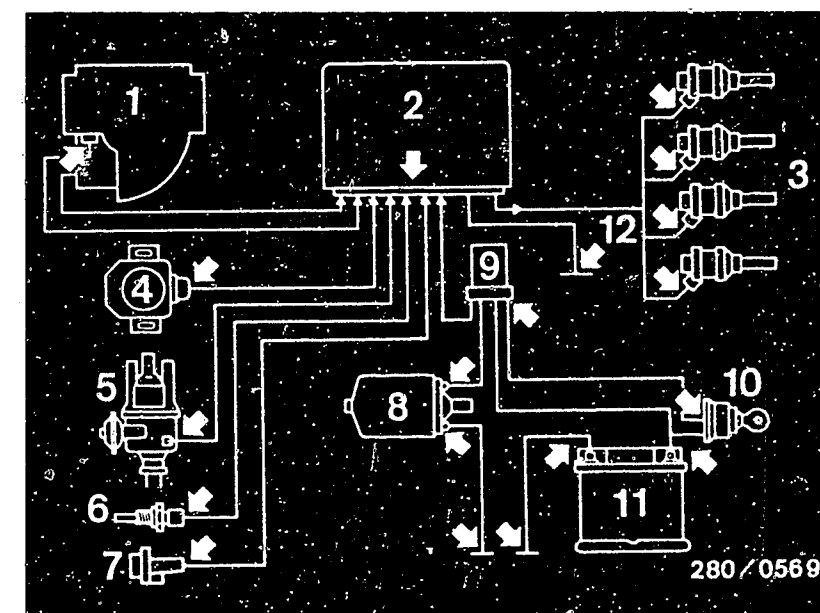
If a fault is found during a test, the test must be repeated after remedying the fault.

The test with the universal test adapter must always be performed from beginning to end.

Be sure to follow the instructions in the test chart.

- Test steps 1...3 measure voltages during starting.
Set multimeter to "voltage measuring range".
- Test steps 4...10 measure resistances.
Set multimeter to "resistance measuring range".

Test specifications and notes on how to operate the universal test adapter are given in the following test chart.



Electrical plug-in connections
(arrows)

- 1 = Air-flow sensor
- 2 = Control unit
- 3 = Injection valves
- 4 = Throttle-valve switch
- 5 = Ignition distributor
- 6 = Temperature sensor (engine)
- 7 = Auxiliary-air device
- 8 = Electric fuel pump
- 9 = Control relay
- 10 = Ignition lock
- 11 = Battery
- 12 = Central ground

B9

Test chart for universal test adapter
Peugeot 505 GTI



B10

Test chart for universal test adapter
Peugeot 505 GTI



Note:

In the following test steps a white surround in the "Operation" column indicates which operation is different from the preceding test step.

TEST STEP: 1

Operation		Reading	Testing
Program switch "V" at position:	5	On ignition oscilloscope: <u>Ignition pulses</u>	<u>Component:</u> Ignition system signal from term. 1
Program switch "Ω" at position:	—*		
Measuring equipment: ignition oscilloscope		<div><div></div><div>Yes</div><div></div><div>No</div><div></div></div>	<u>Operation:</u> Voltage pulses energization of control unit by the ignition
Measuring range: Special input . Control stick up against left-hand stop and measuring range 20V			
Connection: Testwells			
Operation in vehicle: Ignition "ON" and operate starting motor			<u>Malfunction:</u> No reading
		Continue testing with <u>next test step.</u>	

Trouble-shooting:

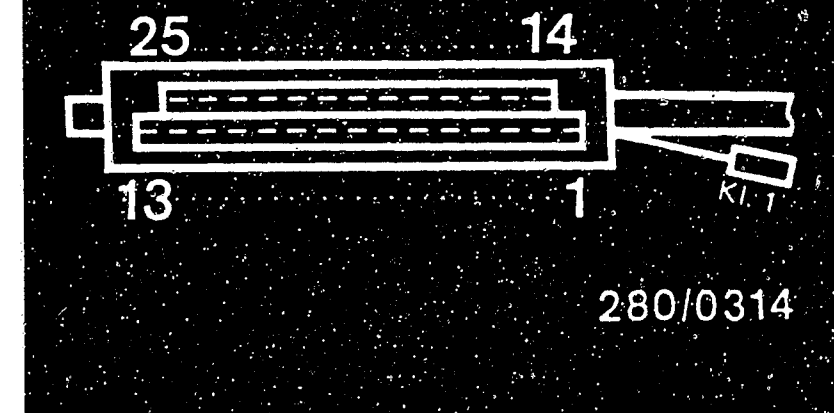
For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity
(set value 0 Ω)

- From control-unit plug term. 1 to ignition coil term. 1.
- From control-unit plug term. 5 to central ground.
- Eliminate contact resistances in the plug-in connections.

If ignition pulse still not visible - test ignition system.

* Switch position not specified.



Top view of control-unit plug

Installation position of components

Control unit:

In passenger compartment, front passenger side, above glove compartment.

Central ground:

On holding plate, on left in front of firewall.

B11

Test chart for universal test adapter
Peugeot 505 GTI

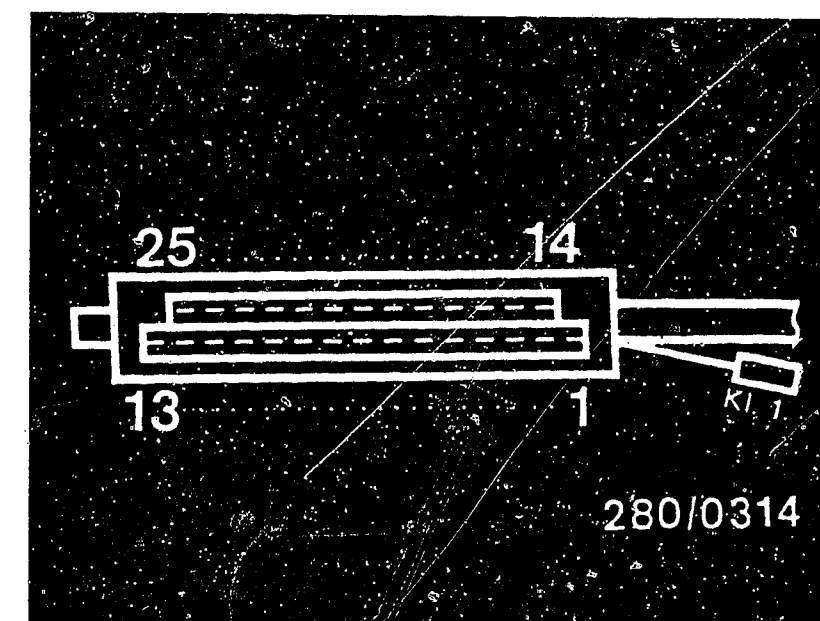


B12

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 2			
Operation		Reading	Testing
Program switch "V" at position:	6	On multimeter 8 ... 15 V	Component: Control relay, voltage supply
Program switch "Ω" at position:	—	Read off.	
Measuring equipment: motor- tester or multimeter (V range)		<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> Yes ↓ </div> <div style="text-align: center;"> No ↓ </div> </div>	Operation: Voltage supply from term. 87
Measuring range: 0...15 V			
Connection: test socket red (+) test socket black (-)			Malfunction: No voltage reading
Operation in vehicle: Ignition "ON" and operate starting motor			
		Continue testing with next test step.	



Top view of control-unit plug

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity (set value approx. 0 Ω):

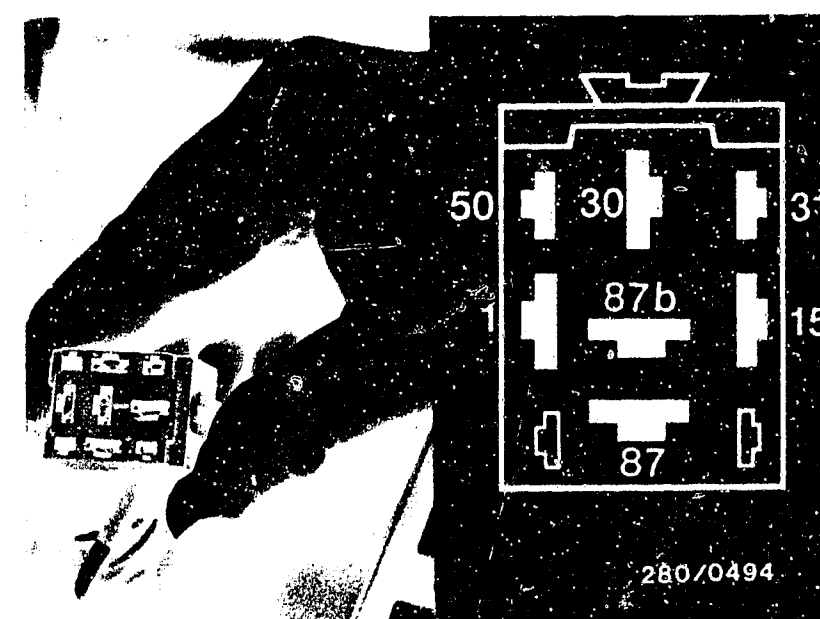
- From control-unit plug term. 9 to control relay term. 87.
- Disconnect battery for further testing.

- From control relay term. 30 to battery (positive terminal).
 - From control relay term. 15 to ignition term. 15.
 - From control relay term. 50 to starting motor term. 50.
 - From control relay term. 31 to central ground.
 - Eliminate contact resistances at the plug-in connections.
- If still no voltage reading - replace control relay.

Installation position of components:

- Control unit: In passenger compartment, front passenger side, above glove compartment.
- Control relay: In engine compartment on holding plate on left in front of firewall.

Control relay disconnected
Top view of plug



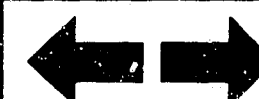
B 13

Test chart for universal test adapter
Peugeot 505 GTI



B 14

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 3			
Operation		Reading	Testing
Program switch "V" at position:	7	on multimeter	<u>Component:</u> Control relay, starting motor
Program switch "Ω" at position:	-	<u>8 ... 15 V</u> Read off	
Measuring equipment: motor- tester or multimeter (V range)		<div><div></div><div>Yes</div><div>↓</div></div> <div><div></div><div>No</div><div>↓</div></div>	<u>Operation:</u> Starting signal from term. 50
Measuring range: 0...15 V			<u>Malfunction:</u> No voltage reading
Connection: test socket red (+) test socket black (-)			
Operation in vehicle: Ignition "ON" and operate starting motor			
			Continue testing with <u>next test</u> <u>step.</u>

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

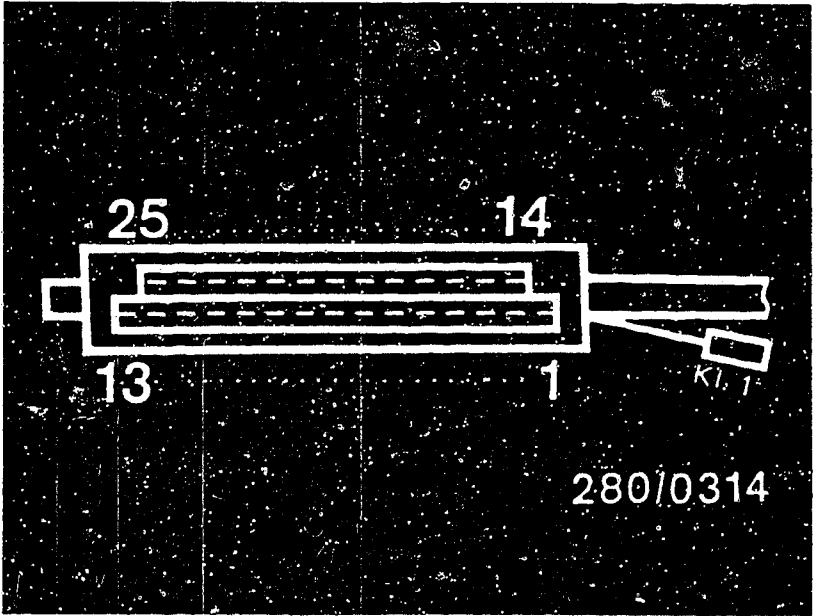
Using ohmmeter, test the following leads for continuity
(set value 0 Ω)

- From control-unit plug term. 4 to control relay term. 50.
- Eliminate contact resistances at the plug-in connections.

If still no voltage reading - test starting control.

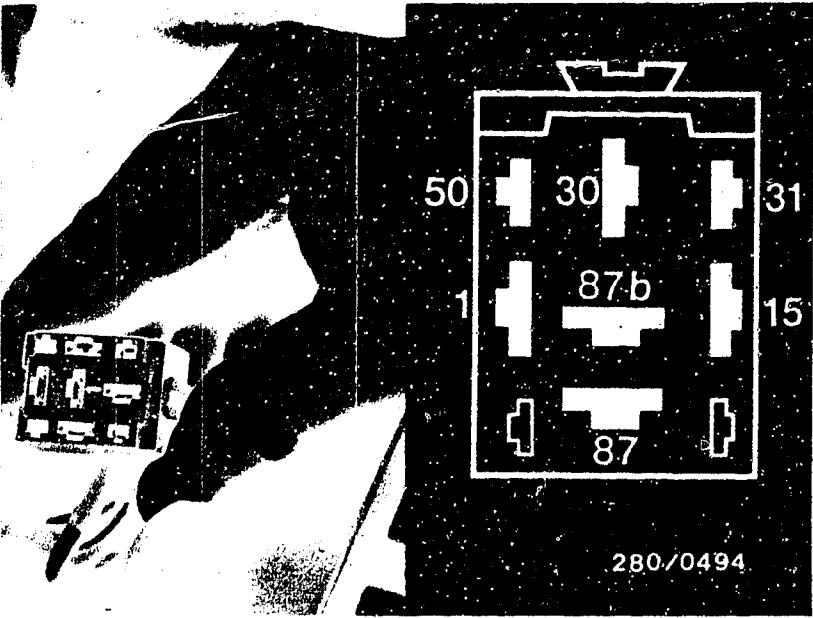
Installation position of components:

- Control unit:
In passenger compartment, front passenger side, above glove compartment.
- Control relay:
In engine compartment on holding plate on left in front of firewall.

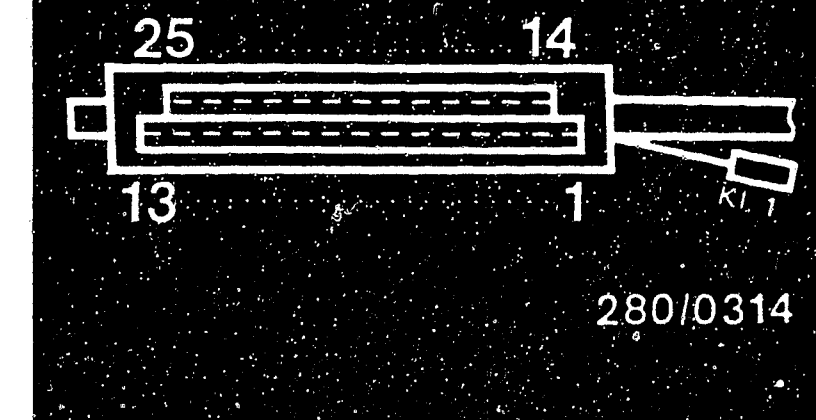


Top view of control-unit plug

Control relay disconnected
Top view of plug



TEST STEP: 4			
Operation		Reading	Testing
Program switch "V" at position:	↓	on multimeter	Component: Air-flow sensor (temperature sensor I)
Program switch "Ω" at position:	11	100 ... 200 Ω	
Measuring equipment: motor-tester or multimeter (Ω - range)		Read off	Operation: Resistance between air-flow sensor term. 8 to central ground
Measuring range: x 10 Ω		Yes	
Connection: Test sockets blue		No	Malfunction: Resistance outside tolerance
Operation in vehicle: ---		Continue testing with next test step.	



Top view of control-unit plug

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity (set value 0 Ω)

1. Electric fuel pump:

- From control relay term. 87b to electric fuel pump (positive terminal).
- From electric fuel pump (negative terminal) to ground terminal on body

2. Air-flow sensor

- From multiple plug term. 8 to air-flow sensor term. 8.
 - From air-flow sensor term. 5 to central ground.
 - From air-flow sensor term. 9 to control-unit plug term. 9.
- Eliminate contact resistances in plug-in connections.

If resistance reading still outside tolerance - replace air-flow sensor.

Installation position of components:

- Electric fuel pump:
Under vehicle, behind differential.
- Control unit:
In passenger compartment, front passenger side, above glove compartment.
- Air-flow sensor:
In engine compartment on right.
- Central ground:
On holding plate of firewall.

B 17

Test chart for universal test adapter
Peugeot 505 GTI



B 18

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 5			
Operation		Reading	Testing
Program switch "V" at position:	↓	on multimeter 60 ... 1000 Ω	Component: Air-flow sensor (potentiometer)
Program switch " Ω " at position:	12	Read off	
Measuring equipment: motor- tester or multimeter (Ω - range)		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Yes ↓ Continue testing with next test step. </div> <div style="text-align: center;"> No ↓ </div> </div>	Operation: Resistance between air-flow sensor term. 7 to central ground
Measuring range: x 10 Ω			Malfunction: Resistance outside tolerance
Connection: Test sockets blue			
Operation in vehicle: Deflect air-flow sensor flap			

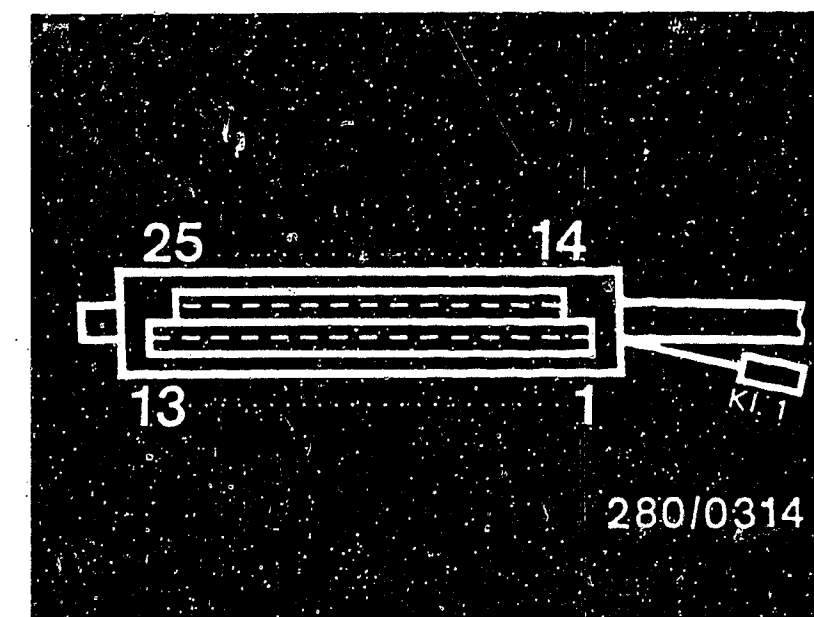
Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity
(set value 0 Ω)

- From control-unit plug term. 7 to air-flow sensor term. 7
- Eliminate contact resistances in the plug-in connections.

If resistance reading still outside tolerance - replace air-flow sensor.



Top view of control-unit plug

Installation position of components

- Control unit:
In passenger compartment, front passenger side, above glove compartment.
- Air-flow sensor:
In engine compartment on right.

B 19

Test chart for universal test adapter
Peugeot 505 GTI

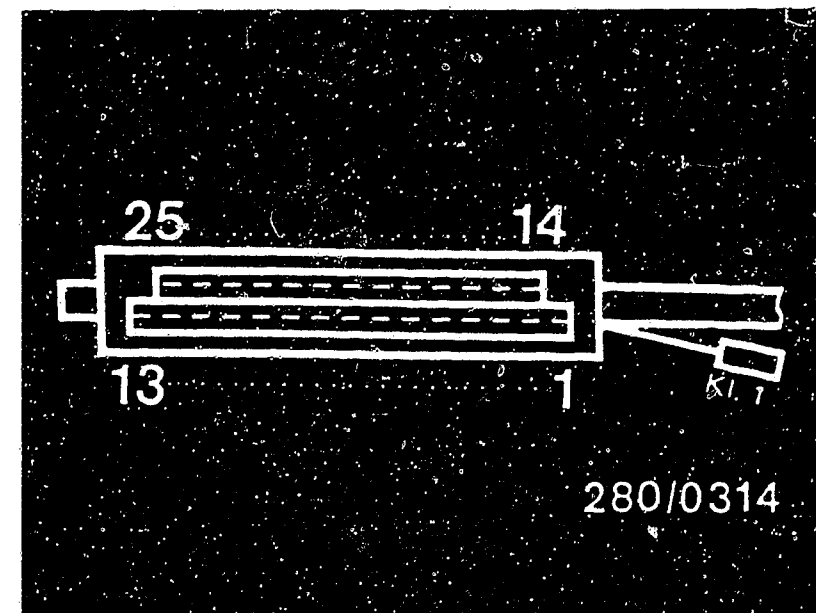


B 20

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 6				
Operation		Reading	Testing	
Program switch "V" at position:	↓	Multimeter must indicate <u>1.45...3.3 kΩ</u> at ambient temperature (+15°C...+30°C) and <u>280...360 Ω</u> with engine at normal op. temp. (approx. +80°C).	<u>Component:</u> Temperature sensor II (engine)	
Program switch "Ω" at position:	13		<u>Operation:</u> Resistance between air- flow sensor term. 10 to central ground	
Measuring equipment: motor- tester or multimeter (Ω - range)				
Measuring range: x 10 Ω or x 100 Ω				
Connection: Test sockets blue.		Yes	<u>Malfunction:</u> Resistance outside tolerance	
Operation in vehicle: ---		No		
		Continue testing with <u>next test step.</u>		



Top view of control-unit plug

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Measure resistance directly at temperature sensor II, engine (blue plug).

If the measured resistance is outside tolerance - replace temperature sensor.

Using ohmmeter, test the following leads for continuity (set value 0 Ω)

- From control-unit plug term 10 to temperature sensor II (engine) term. 13
- Term. M49 from temperature sensor II to central ground.
- Eliminate contact resistances in the plug-in connections.

Installation position of components

- Temperature sensor II (engine):
On coolant distributor on engine at front left.
- Central ground:
On holding plate of firewall.
- Control unit:
In passenger compartment, front passenger side, above glove compartment.

B21

Test chart for universal test adapter
Peugeot 505 GTI



B22

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 8			
Operation		Reading	Testing
Program switch "V" at position:	↓	On multimeter 0 ... 10 Ω read off.	Component: Throttle-valve switch (idle contact)
Program switch "Ω" at position:	16		
Measuring equipment: motor-tester or multimeter (Ω - range)		<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> Yes ↓ </div> <div style="text-align: center;"> No ↓ </div> </div>	Operation: Resistance of throttle-valve switch between term. 2 and term. 18. Malfunction: Resistance outside tolerance
Measuring range: x 1 Ω			
Connection: Test sockets blue			
Operation in vehicle: Accelerator in rest position. Bridge term. 2 and 2A in base for time-delay relay.			
		Continue testing with next test step.	

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Adjusting the throttle-valve switch

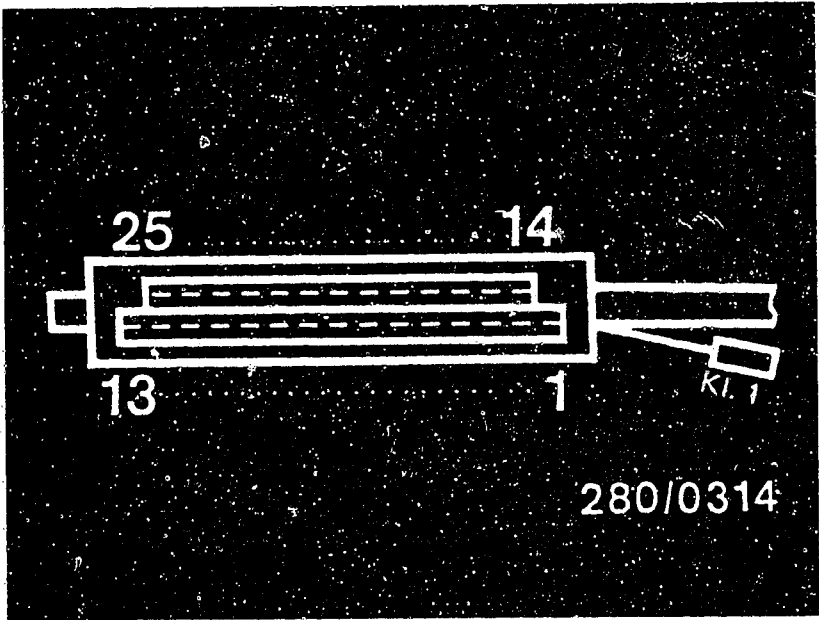
Slightly loosen throttle-valve switch fastening screws. Connect ohmmeter to throttle-valve switch between term. 2 and term. 18. Turn throttle-valve switch in a counterclockwise direction until the idle contact closes (microswitch can be heard to click).

Reading 0 Ω . If not, replace throttle-valve switch.

Checking the adjustment: pull slightly on throttle cable. The idle contact opens (microswitch can be heard to click). Reading ∞ Ω .

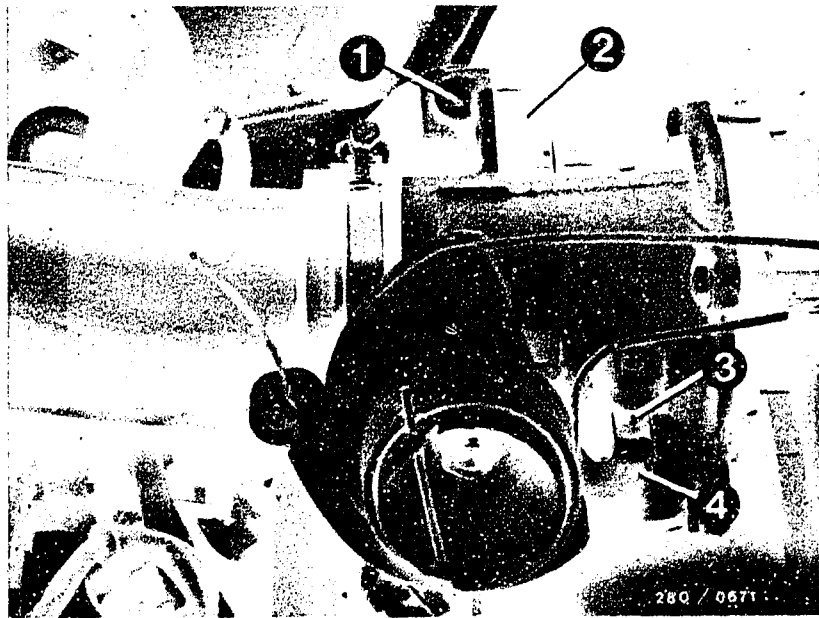
Using ohmmeter, test the following leads for continuity (set value approx. 0 Ω):

- From control-unit plug term. 2 to time-delay relay term. 2A
- From time-delay relay term. 2 to throttle-valve switch term. 2.
- From throttle-valve switch term. 18 to control-unit plug term. 9.
- Eliminate contact resistances in the plug-in connections.

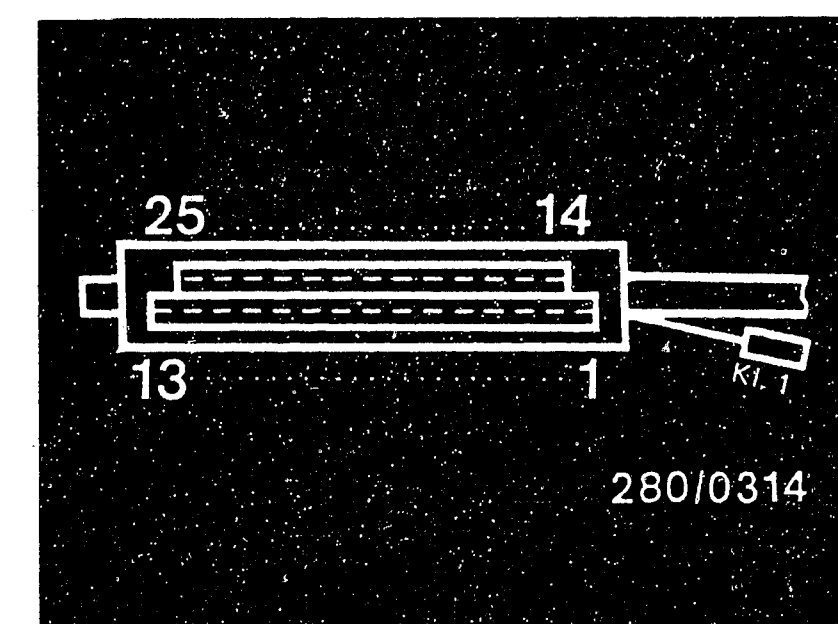


Top view of control-unit plug

- 1 = Fastening screws
- 2 = Throttle-valve switch
- 3 = Throttle-valve stop screw
- 4 = Throttle lever



TEST STEP: 9			
Operation		Reading	Testing
Program switch "V" at position:	↓	On multimeter 0 ... 10 Ω read off.	Component: Throttle-valve switch (Full-load contact)
Program switch "Ω" at position:	17		
Measuring equipment: motor-tester or multimeter (Ω - range)		<div>Yes</div> <div>No</div>	Operation: Resistance between throttle-valve switch term. 3 and term. 18 (lead 18).
Measuring range: x 1 Ω			Malfunction: Resistance outside tolerance
Connection: Test sockets blue			
Operation in vehicle: Accelerator in full-load position			
		Continue testing with next test step.	



Top view of control-unit plug

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity (set value 0 Ω)

- From control-unit plug term. 3 to throttle-valve switch term. 3
- Eliminate contact resistances in the plug-in connections.

If the resistance reading is still outside tolerance - replace throttle-valve switch.

Installation position of components

- Control unit:
In passenger compartment, front passenger side above glove compartment.
- Throttle-valve switch:
On throttle valve part at rear.

C3

Test chart for universal test adapter
Peugeot 505 GTI

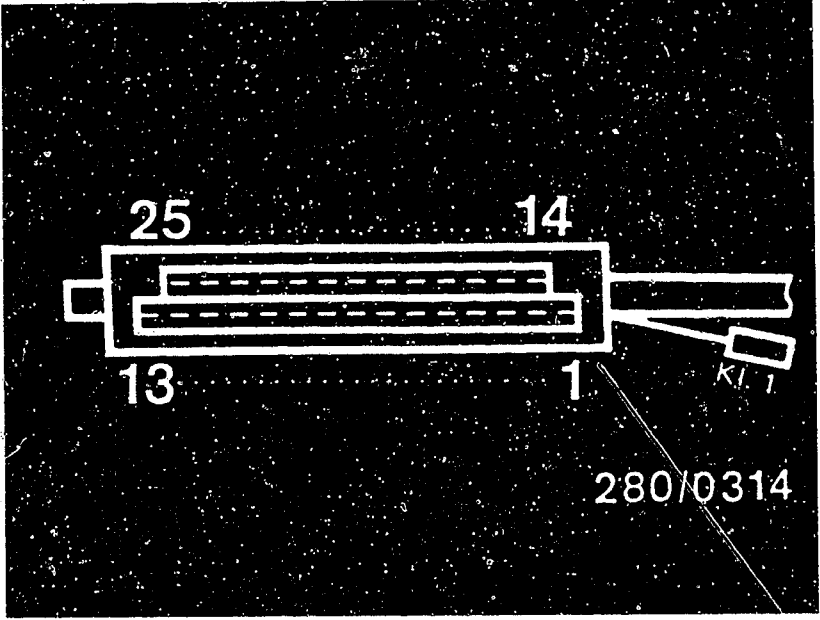


C4

Test chart for universal test adapter
Peugeot 505 GTI



TEST STEP: 10				
Operation		Reading	Testing	
<u>Program switch "V"</u> at position:	↓	Multimeter must indicate + 20 ⁰ C: <u>7,0 ... 9,5 Ω</u> + 80 ⁰ C: <u>7,2 ... 10,0 Ω</u>	<u>Component:</u> Injection valves	
<u>Program switch "Ω"</u> at position:	18		<div><div>Yes</div><div>↓</div><div>Continue testing with <u>next test</u> <u>step.</u></div></div> <div><div>No</div><div>↓</div><div></div></div>	<u>Operation:</u> Resistance of all solenoid operated injection valves (in parallel)
<u>Measuring equipment:</u> motor- tester or multimeter (Ω - range)				<u>Malfunction:</u> Resistance outside tolerance
<u>Measuring range:</u> x 1 Ω				
<u>Connection:</u> Test sockets blue				
<u>Operation in vehicle:</u> ---				



Top view of control-unit plug

Trouble-shooting:

For testing, remove control-unit plug from test adapter and use circuit diagram if necessary.

Using ohmmeter, test the following leads for continuity (set value approx. 0 Ω):

- From control-unit plug term. 12 to the injection valves.
- From the injection valves to control relay term. 87.
- Resistance measurement at injection valve:
at ambient temperature (+15°C...+30°C): 15...17.5 Ω
with engine at op. temp. (approx.+80°C): 17...20 Ω

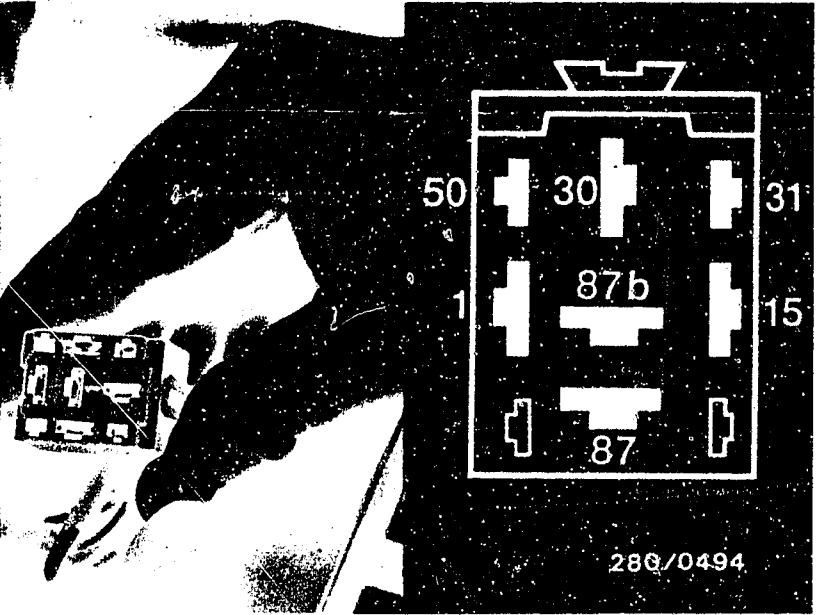
If reading too high: valve coil has open circuit or a valve connector has dropped off. Check connection lugs for security. Eliminate contact resistances.

If necessary, replace injection valve(s).

Installation position of components

- Injection valves: in the intake ports.
- Control relay: in engine compartment on holding plate of firewall.

Control relay disconnected
Top view of plug



The electrical test with the universal test adapter is now completed.

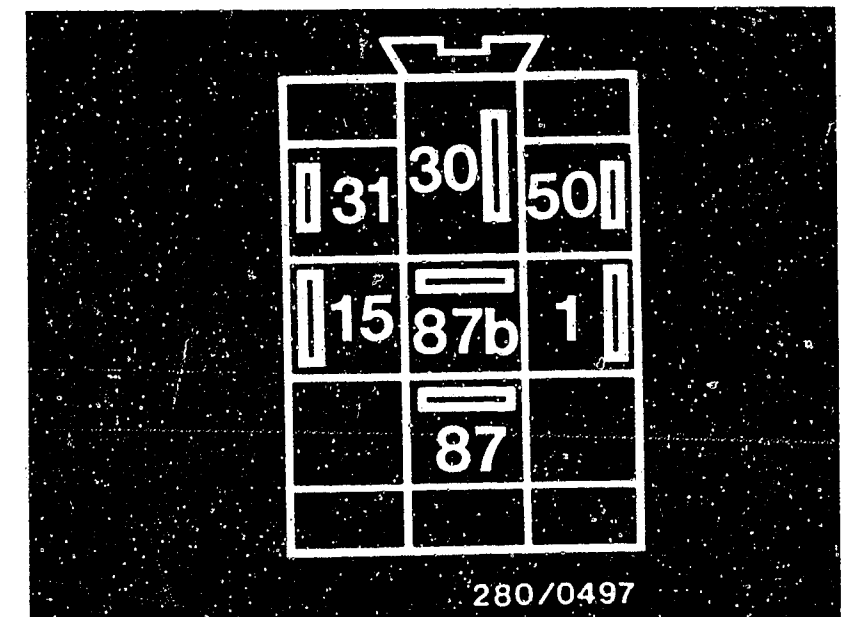
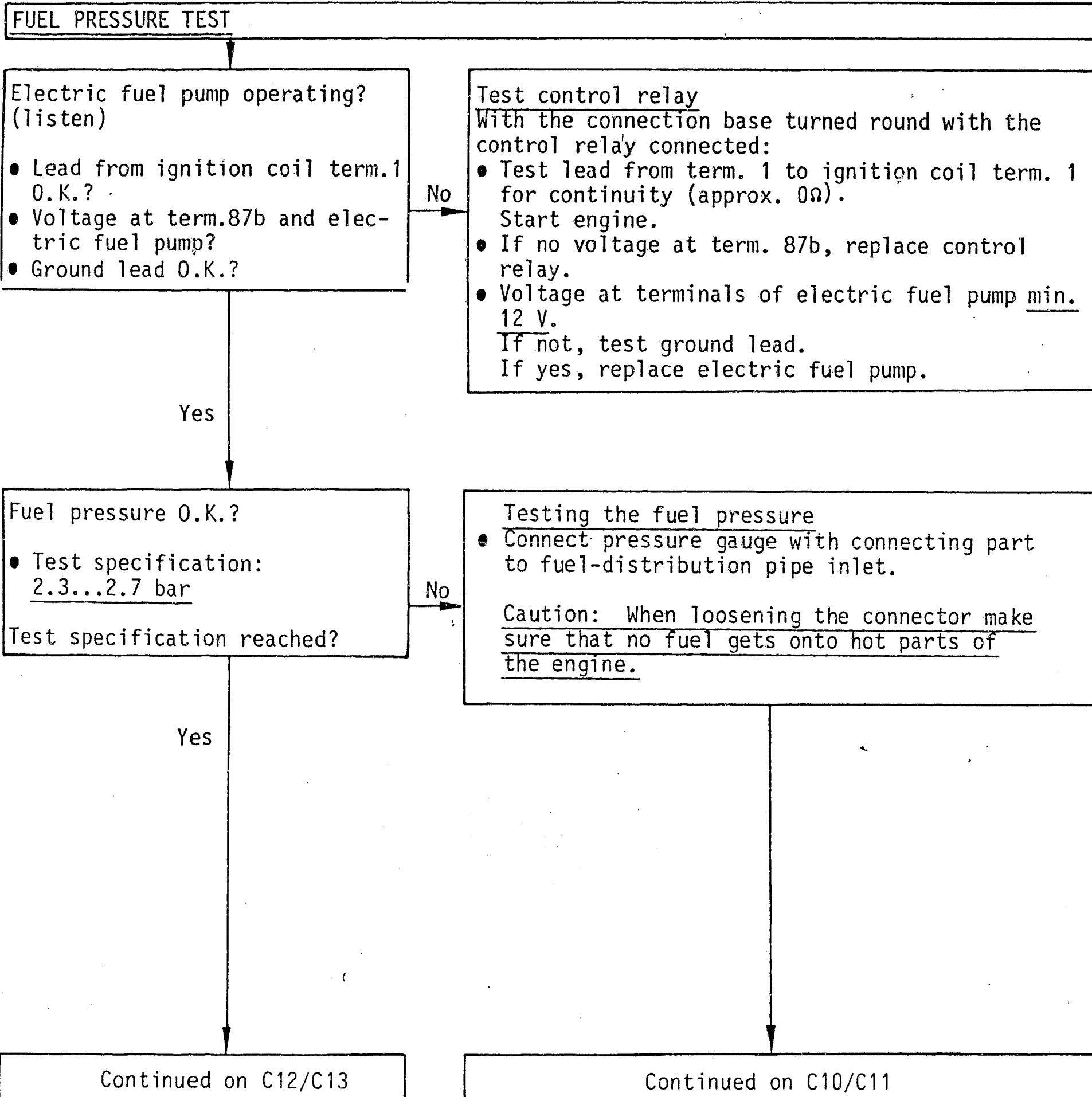
The fuel pressure test must now be performed.

The fuel pressure test is described on Coordinates C 8...C 19.

C7

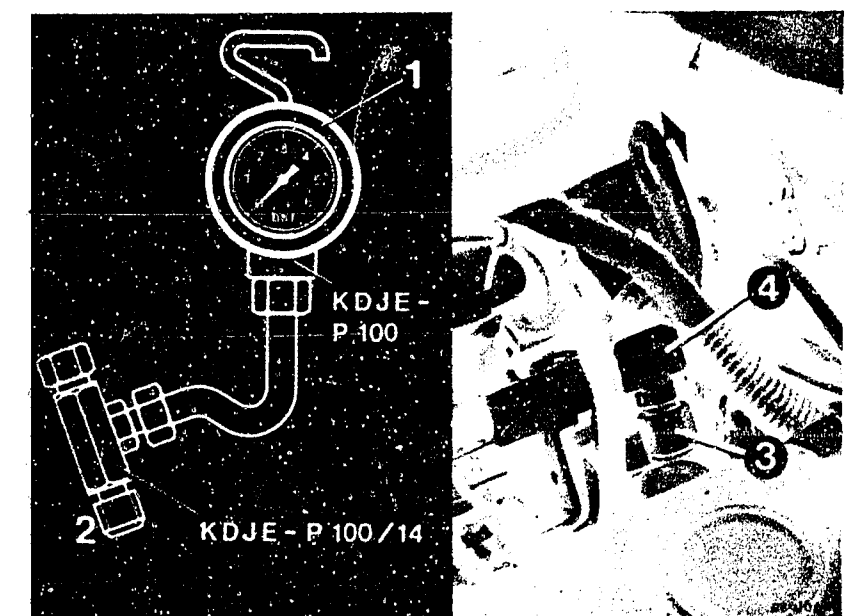
Test chart for universal test adapter
Peugeot 505 GTI





Back of control relay connection base

- 1 = Pressure gauge
- 2 = Connecting part
- 3 = Delivery line from fuel filter
- 4 = Fuel-distribution pipe



C8

Fuel pressure test
Peugeot 505 GTI



C9

Fuel pressure test
Peugeot 505 GTI



Fuel pressure test (continued)

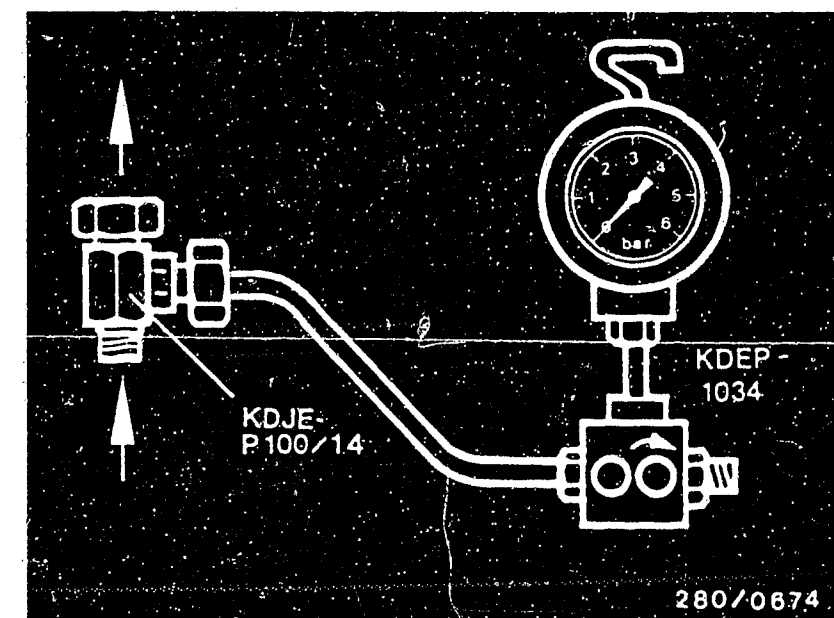
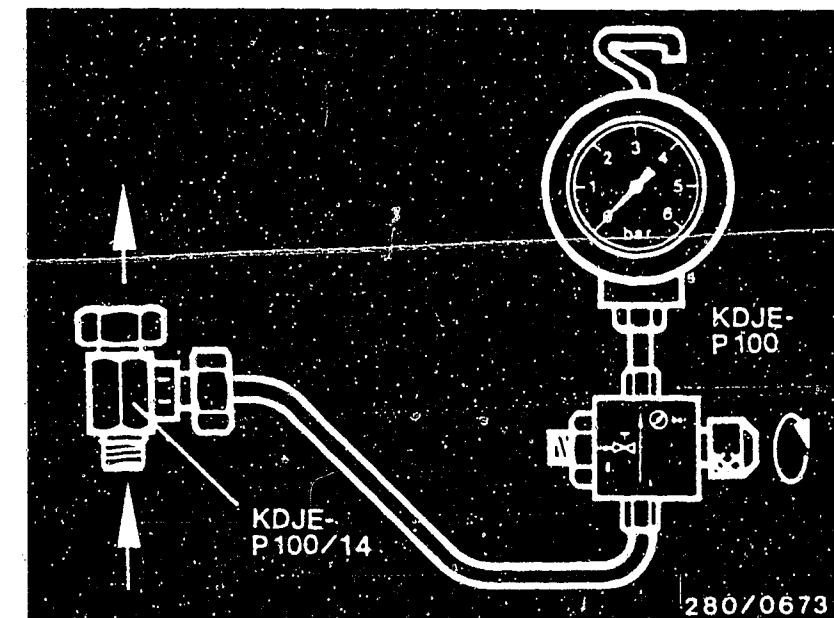
Testing the fuel pressure

Unscrew inlet delivery line from fuel-distribution pipe and connect connecting part KDJE-P 100/14 in between. If using pressure tester KDJE-P close the valve screw. In the case of KDEP 1034 only the right-hand valve screw needs closing. Make sure there are no leaks.

Yes

yes

Continued on C12/C13



C10

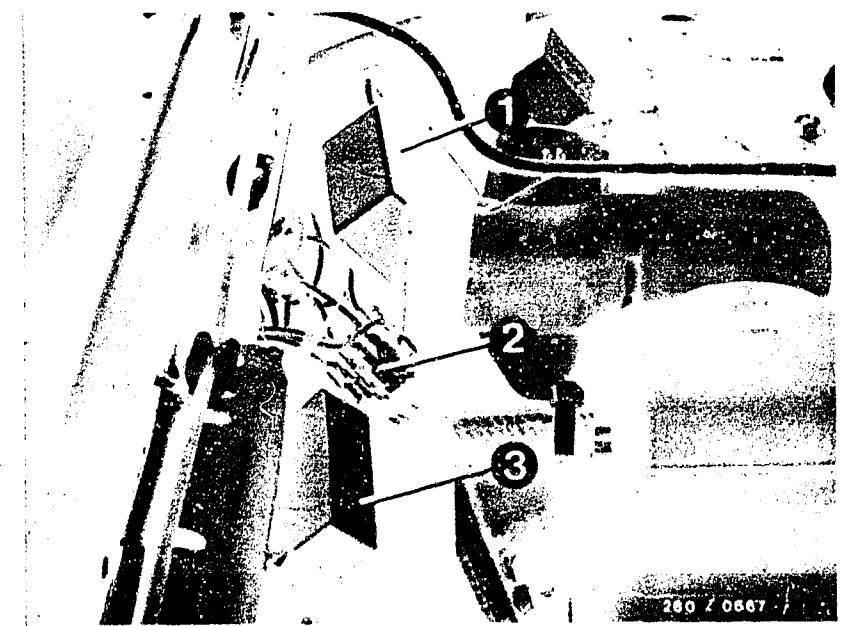
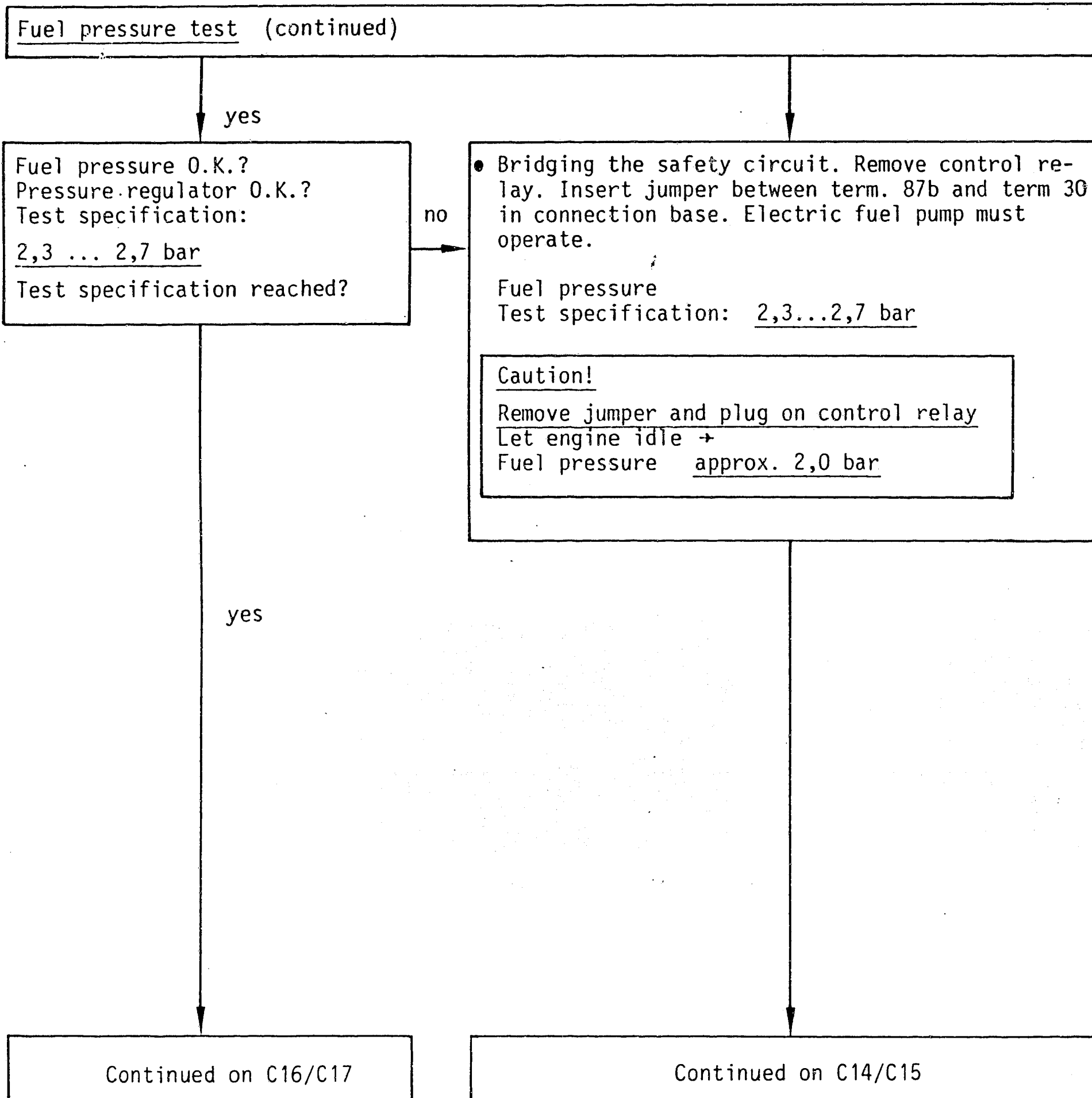
Fuel pressure test
Peugeot 505 GTI



C11

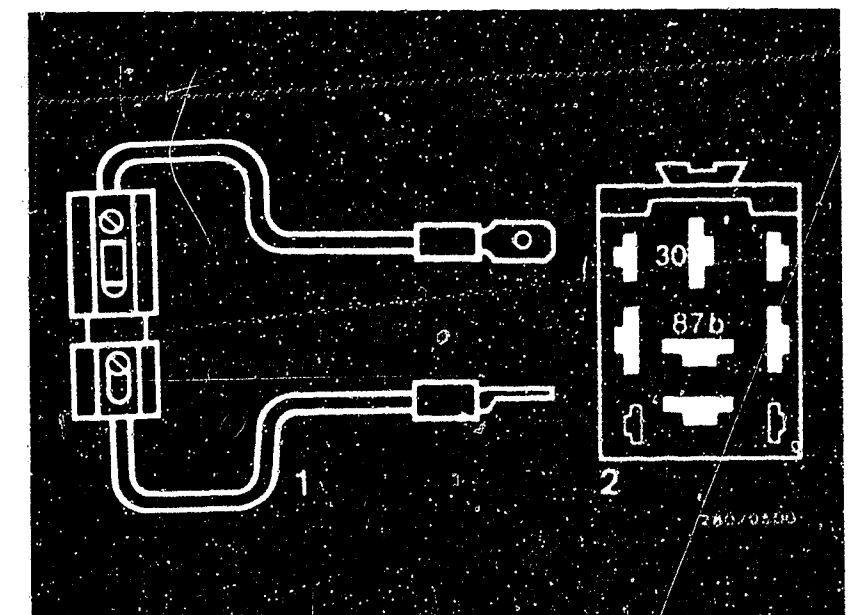
Fuel pressure test
Peugeot 505 GTI





1 = Control relay
2 = Central ground
3 = Time-delay relay
on holding plate of
firewall

1 = Jumper with fuse holder and 10A
fuse (user-fabricated)
2 = Top view of connection base



C12

Fuel pressure test
Peugeot 505 GTI



C13

Fuel pressure test
Peugeot 505 GTI



Fuel pressure test (continued)

Test pressure regulator

Remove control relay and fit jumper between term. 87b and term. 30 in connection base. Electric fuel pump must operate.

Fuel pressure: 2.3...2.7 bar

Fuel pressure of 2.3 bar not reached:

- Slowly pinch off fuel return line:
(Caution: Do not load pressure gauge above 6 bar.)

Yes

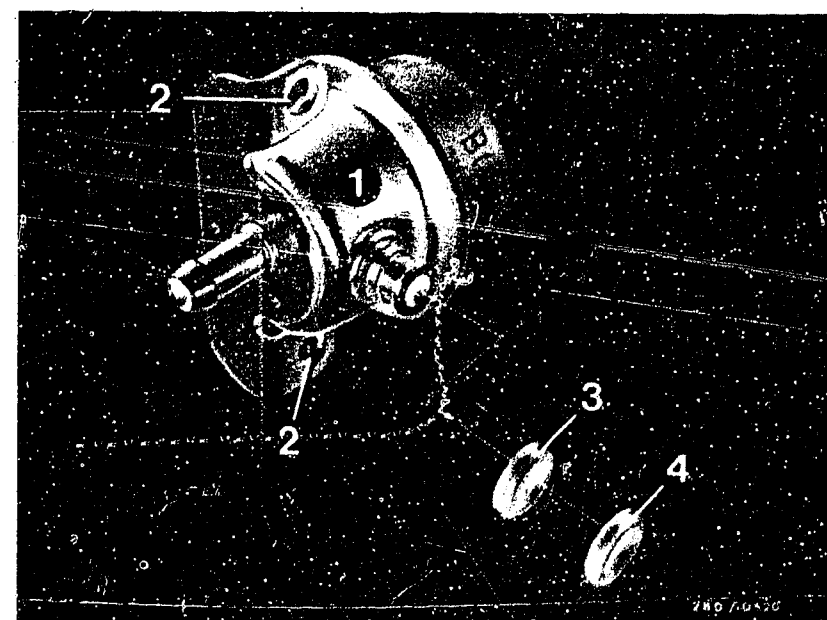
If pressure rises above 4 bar → replace pressure regulator. The fuel-pressure regulator is mounted on the fuel-distribution pipe by means of two fastening screws and an O-ring. After removing the pressure regulator, always replace the O-ring and the flat ring (use parts set 1 287 010 704).

Continued on C16/C17



Arrow = Pressure regulator

- 1 = Pressure regulator
- 2 = Mounting holes
- 3 = Flat ring
- 4 = O-ring



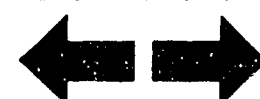
C14

Fuel pressure test
Peugeot 505 GTI



C15

Fuel pressure test
Peugeot 505 GTI



Fuel pressure test (continued)

- Test fuel delivery line and fuel filter for throughflow.
- Strainer in tank clogged.
- Corrosion in tank.

Fuel pressure of 2.7 bar exceeded:

- Fuel return line clogged or pinched
- Replace pressure regulator.

Caution!

Jumper must be removed again after testing is completed and the control relay must be connected.

Yes

Does fuel pressure remain almost constant after switching off the engine?

Test specification:
2.3...2.7 bar

Test specification reached?

No

The fuel pressure drops quickly after stopping the hot engine.

- Test fuel system for leaks.
Fuel pressure 2.3...2.7 bar

Remove jumper and observe pressure gauge.
After approx. 20 min. the fuel pressure must still be at least 1.0 bar.

Yes

Continued on C18/C19



The fuel filter (arrow) is on the left in front of the rear axle.

Arrow = Pressure regulator



C16

Fuel pressure test
Peugeot 505 GTI



C17

Fuel pressure test
Peugeot 505 GTI



Fuel pressure test (continued)

Yes

If incorrect:

- Check joints between components and fuel hoses and fuel lines for leaks.
- Pressure regulator (diaphragm)
- Injection valves (needle seat, valve not closing properly)
- Electric fuel pump (non-return valve leaking)
- Fuel filter leaking.

Remove pressure gauge. Re-establish connection between fuel delivery line and fuel-distribution pipe.
Remove jumper and connect control relay in connection base.
The fuel pressure test is completed.
If the fault has not been found or if further information and instructions are required on how to remedy the fault, continue in accordance with the trouble-shooting chart of your choice.

Detailed trouble-shooting chart

(Coordinates B3...B4)

Direct trouble-shooting chart

(Coordinates B3...B8)

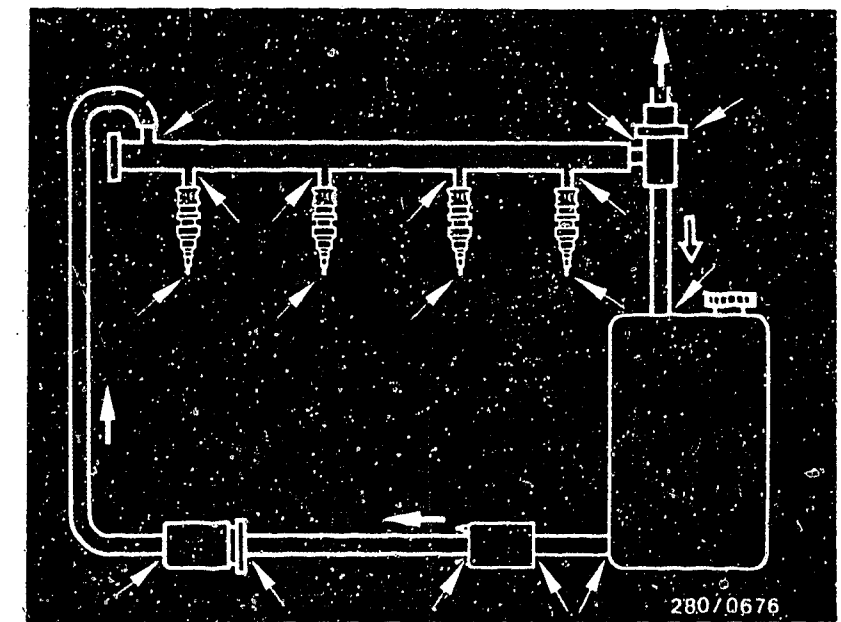


Diagram of fuel lines
Arrows indicate joints between hoses and components.



Trouble-shooting program according to customer complaints

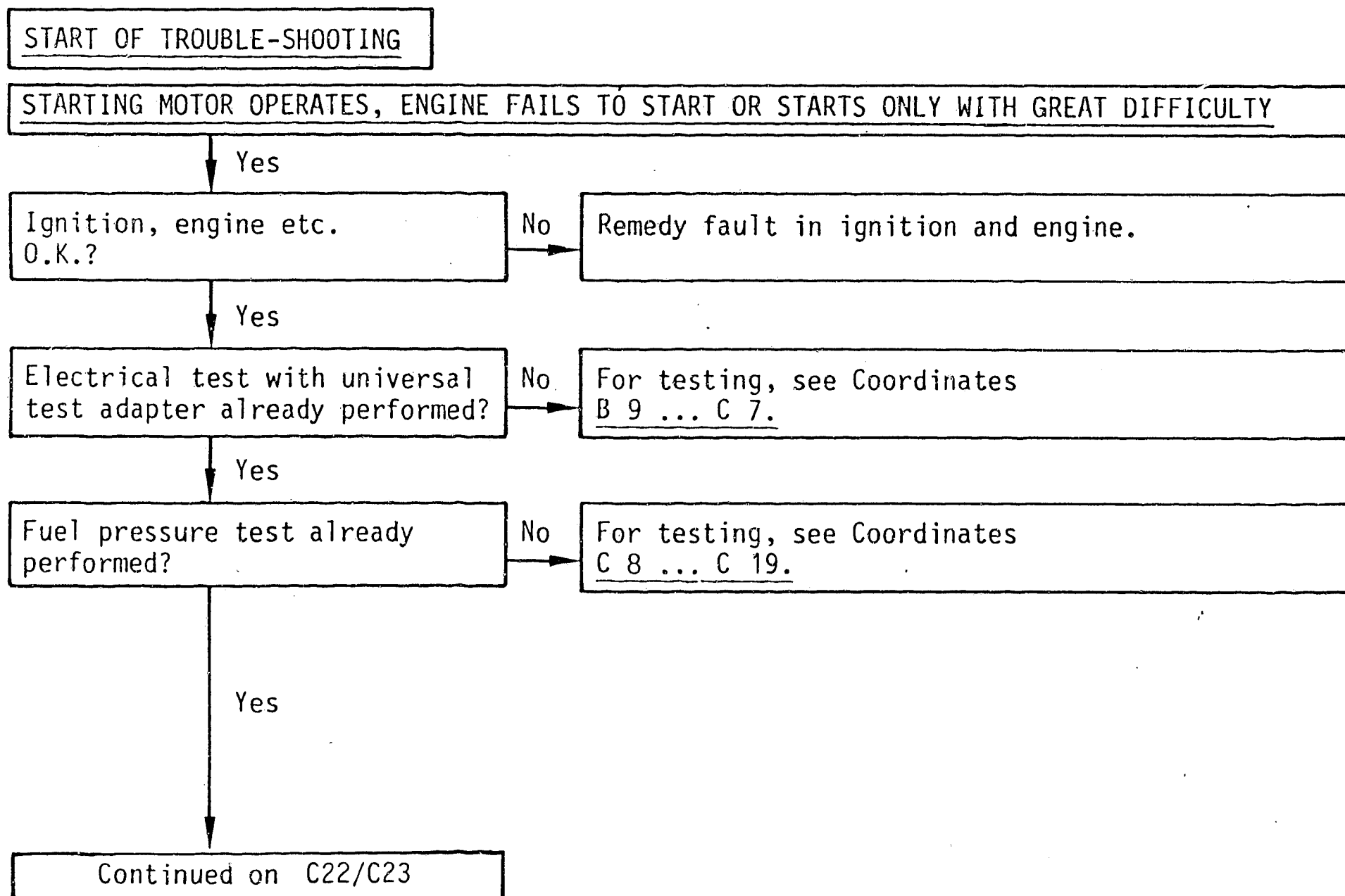
How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.



C20

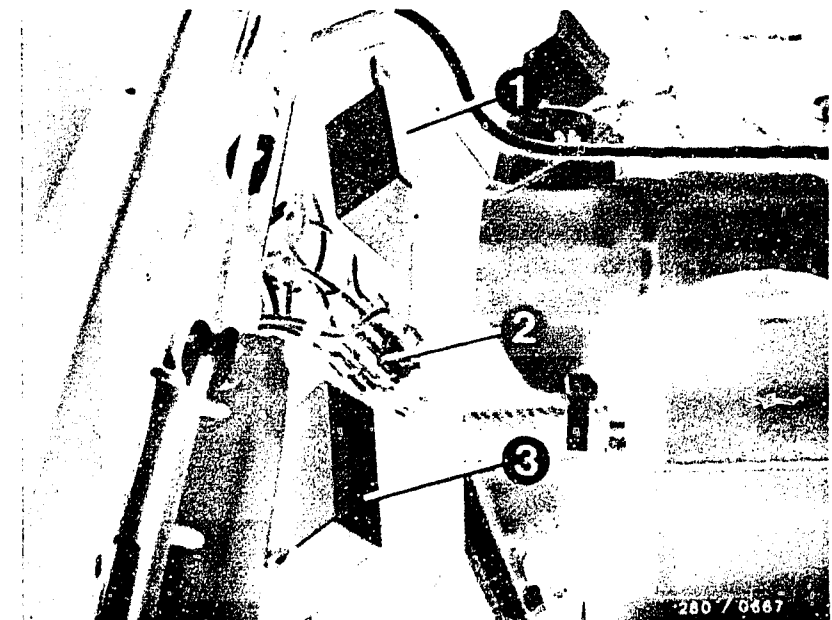
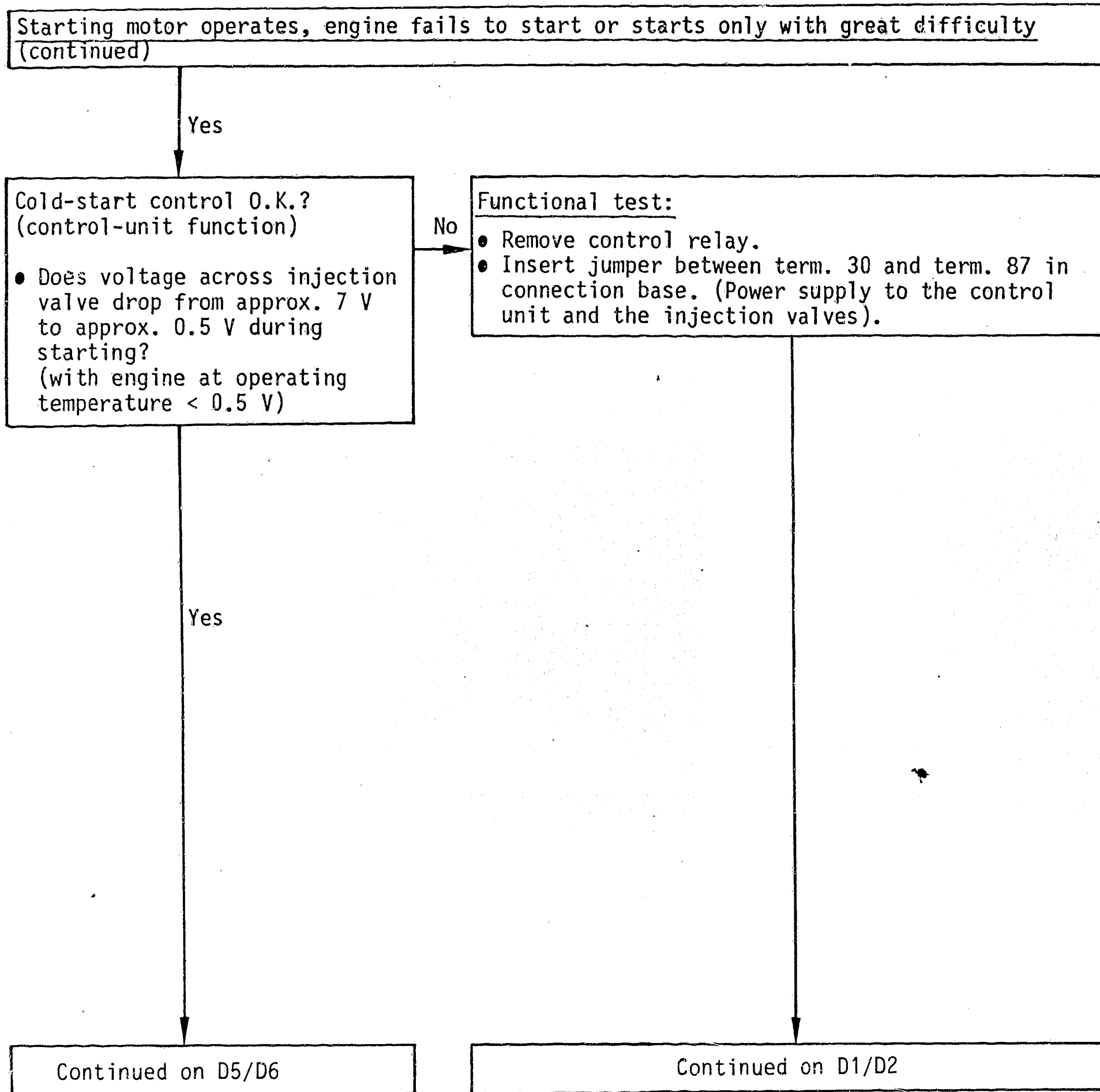
Engine fails to start
Peugeot 505 GTI



C21

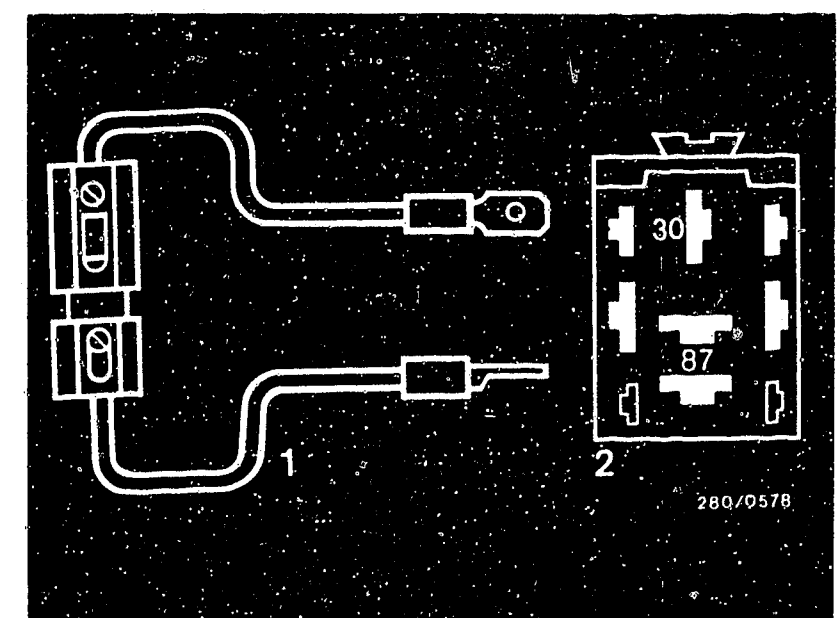
Engine fails to start
Peugeot 505 GTI





1 = Control relay
2 = Central ground
3 = Time-delay relay on holding plate of firewall

1 = Jumper with fuse holder and 10A fuse (user-fabricated)
2 = Top view of connection base



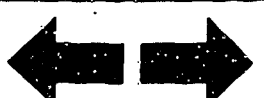
C22

Engine fails to start
Peugeot 505 GTI



C23

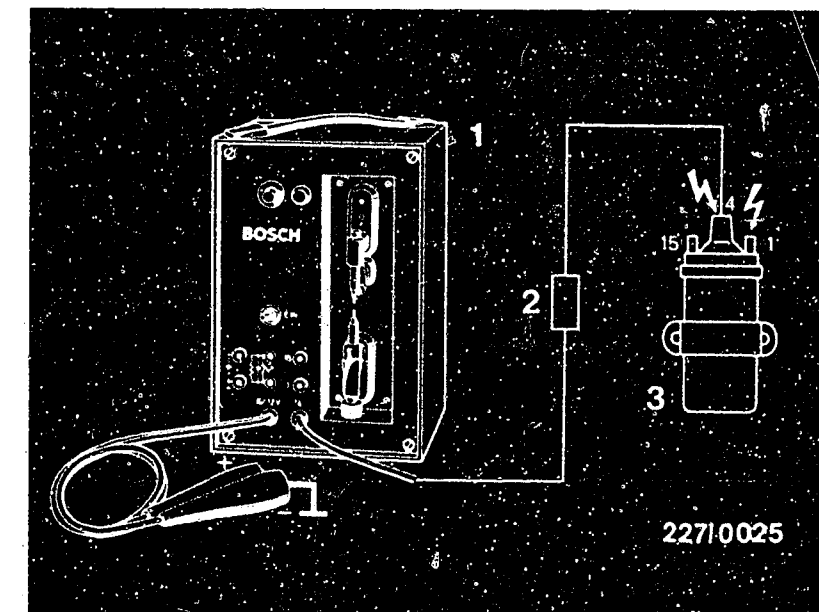
Engine fails to start
Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

- Remove ignition cable term. 4 from distributor cap and connect with spark gap to vehicle ground. (Caution! Engine must not start).

Caution:
To prevent irreparable damage to the trigger box, when using a spark gap, an interference-suppression resistor of at least $2\text{ k}\Omega$ must be connected between spark gap and ignition coil term. 4, e.g. sleeve-type suppressor ($5\text{ k}\Omega$) 0 356 500 001.



Yes

Continued on D5/D6

Continued on D3/D4

D1

Engine fails to start
Peugeot 505 GTI



D2

Engine fails to start
Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

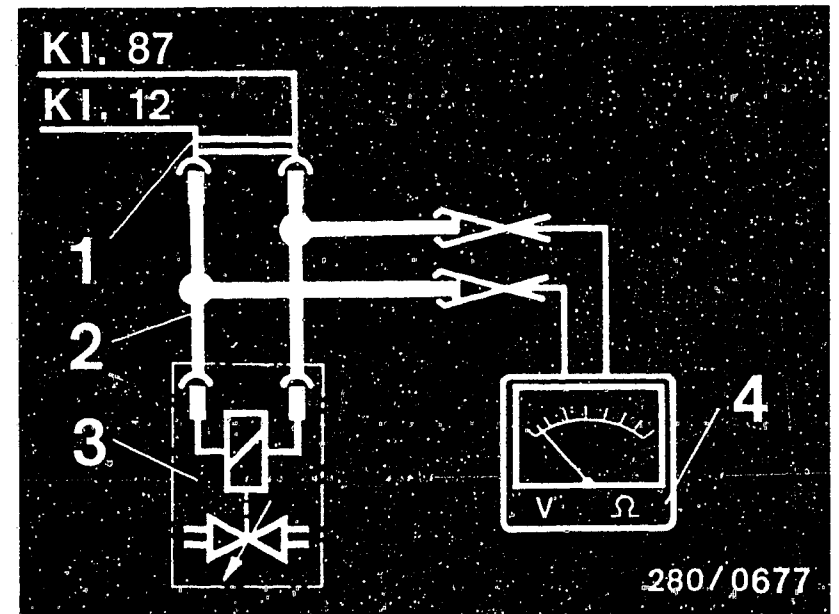
- Connect 2-pole test lead 1 684 463 093 between and injection valve and its electrical connecting lead.
- Connect multimeter to free measuring poles. Measuring-range approx. 10 V.
- Remove plug from temperature sensor II (engine) (blue plug).

Measuring:

- Start engine.
- Voltage reading drops from initially approx. 7 V to approx. 0.5 V within approx. 15 s cranking time.
If voltage values not reached - replace control unit.
- Leave at least one minute before repeating.
- Connect plug to temperature sensor. If engine at normal operating temperature, start - voltage reading less than 0.5 V.

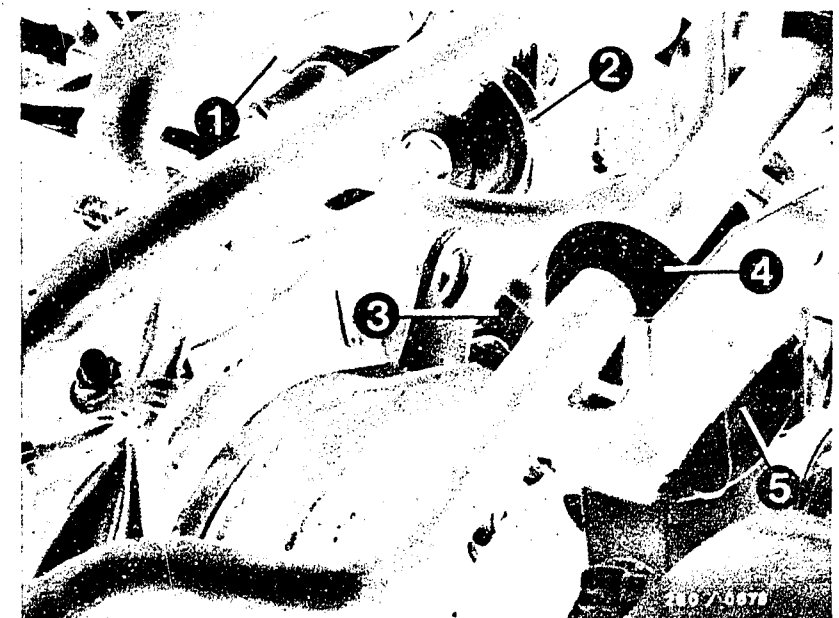
Yes

Continued on D5/D6



- 1 = Connector of valve line
2 = Test lead 1 684 463 093
3 = Injection valve
4 = Multimeter
Term. 87 = From control relay
Term. 12 = From control unit

- 1 = Fuel-distribution pipe
2 = Pressure regulator
3 = Temperature sensor
4 = Auxiliary-air device
5 = Coolant distributor



D3

Engine fails to start
Peugeot 505 GTI



D4

Engine fails to start
Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

Yes

Auxiliary-air device mechanically O.K.?

Free cross section:

- cold - open?
- warm - closed?
- drop in engine speed if hose is pinched off? (cold engine).

No

Testing:

- Visual examination of auxiliary-air device
Disconnect hoses and look down (possibly using a small mirror). When cold, the cross-section must be partially open; when the engine is warm it must be closed. If not, replace auxiliary-air device.
- Functional test of auxiliary-air device:
With the engine cold, pinch off hose to auxiliary-air device. Engine speed must drop. With engine warm, pinch off hose to auxiliary-air device. Engine speed must not drop noticeably. If not, replace auxiliary-air device (pay attention to direction of flow).

Yes

Electrical operation of auxiliary-air device (power supply, ground lead, resistance) O.K.?

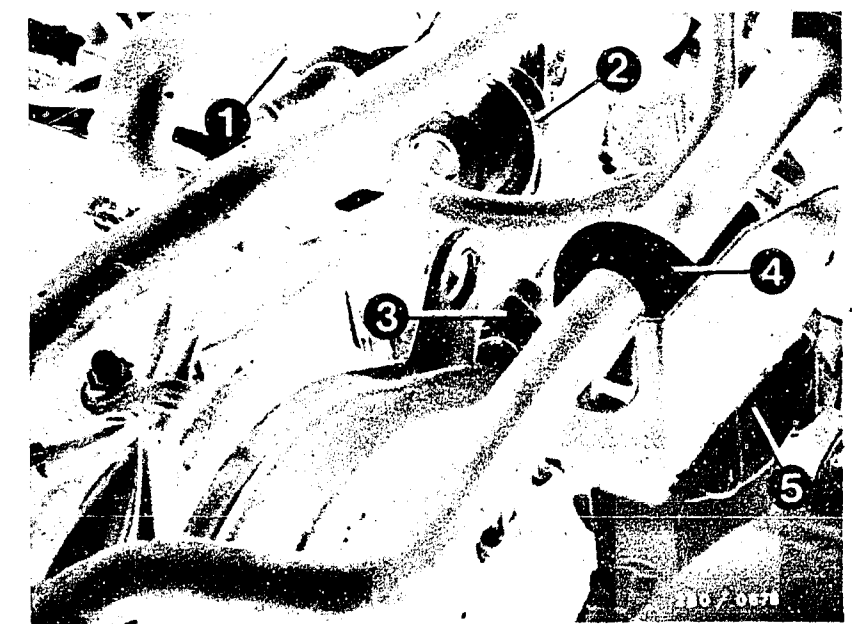
No

Start engine.

- Voltage at plug min. 12 V. If not, test the following leads for continuity (set value approx. 0 Ω):
 - From term. 34M to central ground.
 - From term. 48 to control-unit plug term. 9.
- Resistance of auxiliary-air device 30...65 Ω (plug disconnected).
If resistance outside tolerance, replace auxiliary-air device.

Yes

Continued on D7/D8



- 1 = Fuel-distribution pipe
- 2 = Pressure regulator
- 3 = Temperature sensor
- 4 = Auxiliary-air device
- 5 = Coolant distributor

D5

Engine fails to start
Peugeot 505 GTI



D6

Engine fails to start
Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):

60...1000 Ω

No

Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.

- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent.

The air-flow sensor must be replaced.

- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.

Test specification: 160...300 Ω

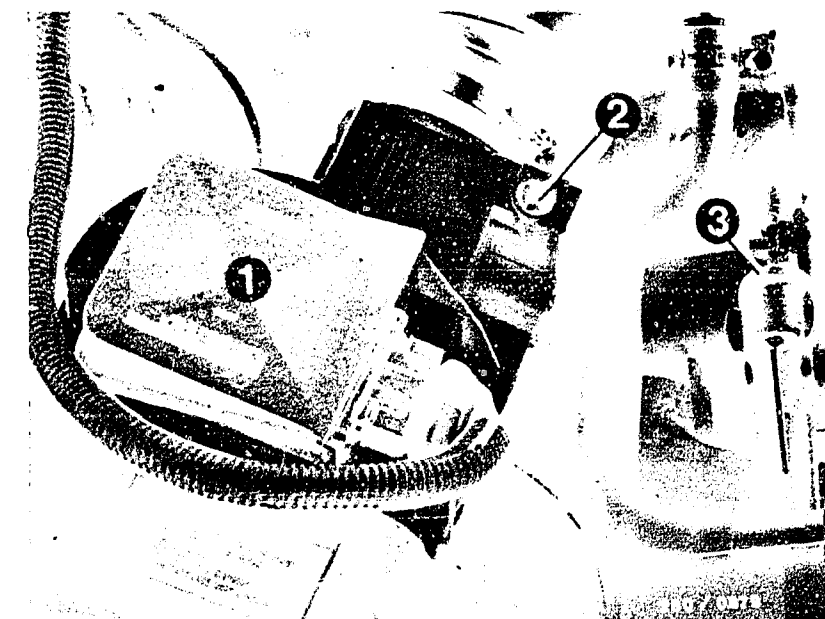
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.

Test specification: 60...1000 Ω

Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

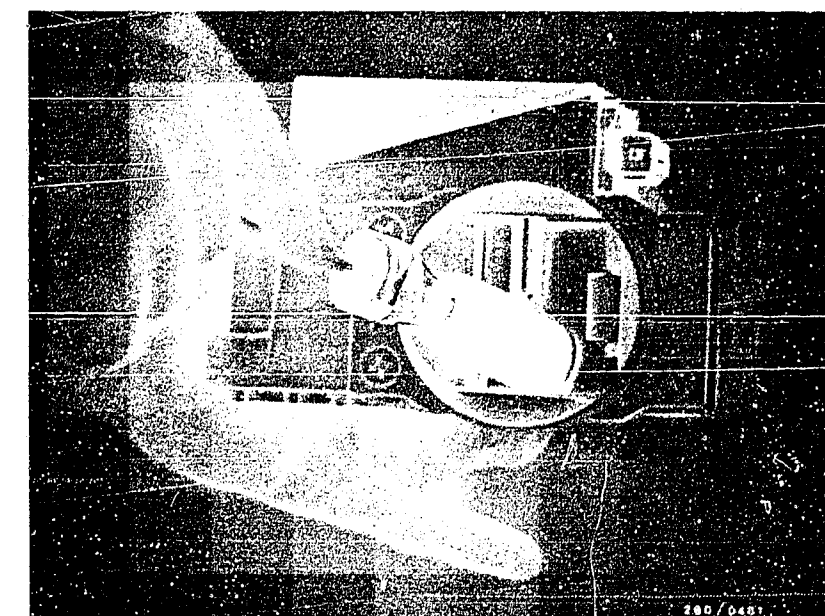
Yes

Continued on D9/D10



- 1 = Air-flow sensor
- 2 = CO adjusting screw
- 3 = Idle-speed adjusting screw

Opening the air-flow sensor flap



D7

Engine fails to start

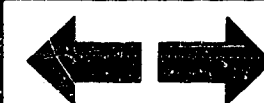
Peugeot 505 GTI



D8

Engine fails to start

Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

Yes

Are all hose lines correctly attached, not kinked or damaged?
Visual examination.

- Air-intake system checked for leaks with 0.3 bar gauge pressure?

No

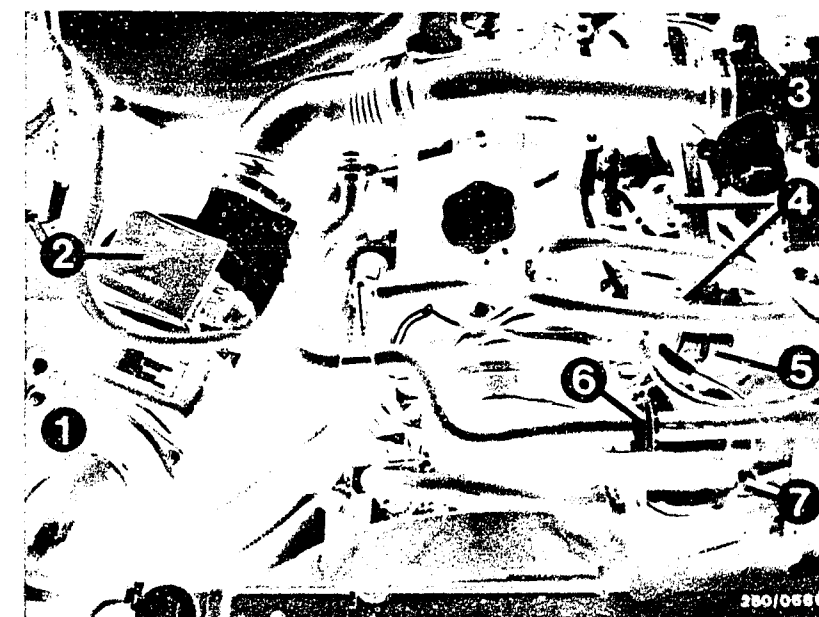
- Check whether hoses of air-intake system and of fuel line system are correctly attached, not kinked or damaged. If necessary, replace hoses. Eliminate leaks by means of new seals or by re-tightening the connecting screws.

• Leak test:

Seal off exhaust tail pipe.
Unscrew air-flow sensor from air-filter housing and seal off air-flow sensor duct.
Pull off hose after auxiliary air device and, using compressed-air gun, blow air (0,3 bar gauge pressure) into the intake manifold. Seal off connection port on auxiliary-air device. Open throttle valve fully while doing this. Brush or spray all joints with soapy water. Leaks may also occur at the following points on the engine: Oil dipstick incorrectly inserted, defective oil filler neck lid seal etc. Bubbling or foaming indicates a leak.

Yes

Continued on D11/D12



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II
(concealed under auxiliary-air device)

D9

Engine fails to start
Peugeot 505 GTI



D10

Engine fails to start
Peugeot 505 GTI



Starting motor operates, engine fails to start or starts only with great difficulty
(continued)

yes

Trouble-shooting program, for
customer complaint

"Starting motor operates,
engine fails to start or starts
only with great difficulty"

Fault remedied?

no

Further possibilities:

- Customer complaint incorrectly diagnosed (see Coordinates B 3...B 8).
If the fault has not been detected by "direct trouble-shooting", see "detailed trouble-shooting". (Coordinates B 3/B 4).
- Engine not mechanically O.K. (Compression, valve setting, valve timing, worn camshaft).

D11

Engine fails to start
Peugeot 505 GTI



D12

Engine fails to start
Peugeot 505 GTI



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

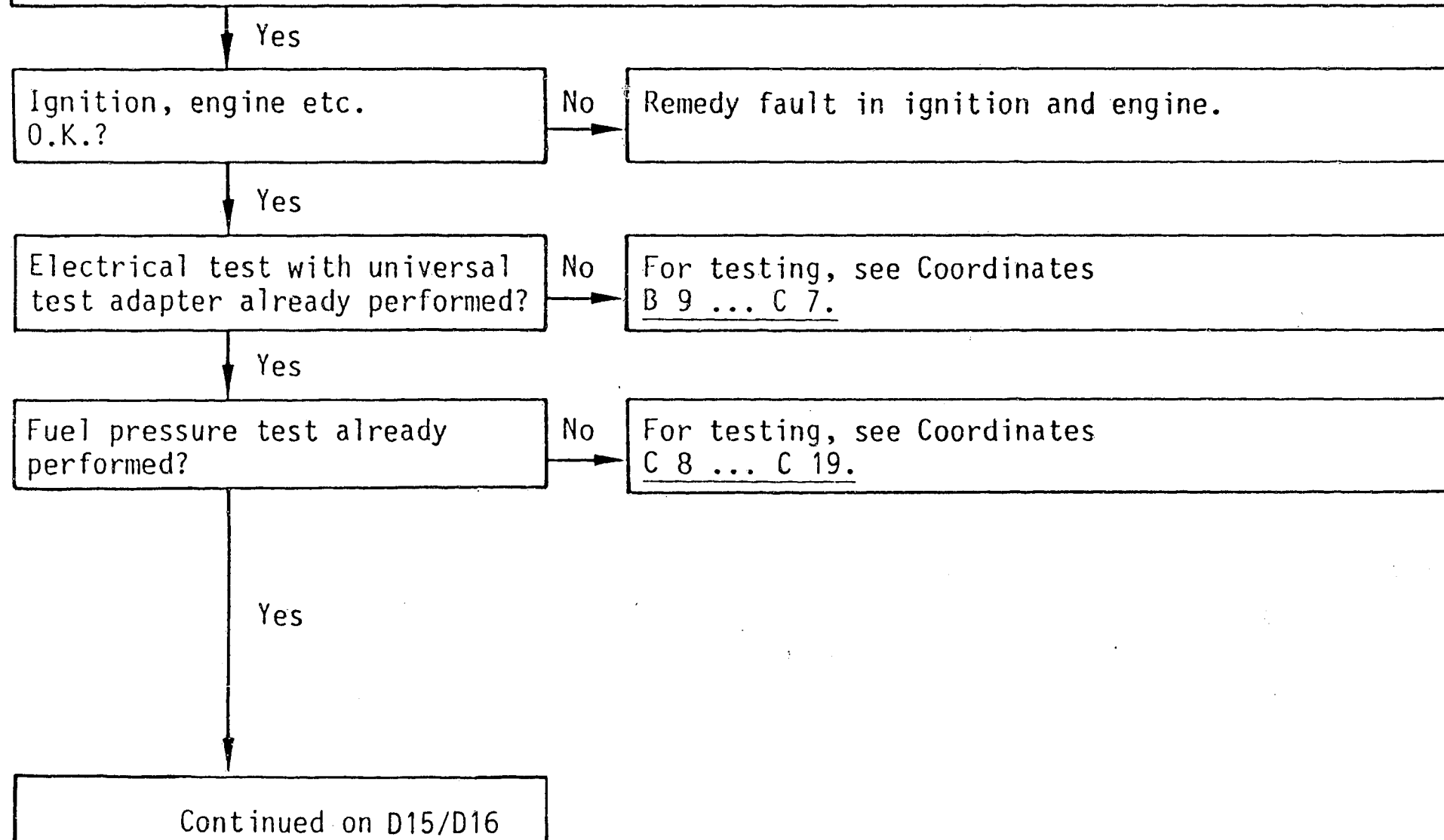
- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

ENGINE STARTS BUT THEN DIES

**D 13**

Engine starts but then dies
Peugeot 505 GTI

**D 14**

Engine start but then dies
Peugeot 505 GTI



Engine starts but then dies (continued)

Yes

Auxiliary-air device mechanically O.K.?

Free cross section:

- cold - open?
- warm - closed?
- drop in engine speed if hose is pinched off? (cold engine).

No

Testing:

- Visual examination of auxiliary-air device
Disconnect hoses and look down (possibly using a small mirror). When cold, the cross-section must be partially open; when the engine is warm it must be closed. If not, replace auxiliary-air device.
- Functional test of auxiliary-air device:
With the engine cold, pinch off hose to auxiliary-air device. Engine speed must drop. With engine warm, pinch off hose to auxiliary-air device. Engine speed must not drop noticeably. If not, replace auxiliary-air device (pay attention to direction of flow).

Yes

Electrical operation of auxiliary-air device (power supply, ground lead, resistance) O.K.?

No

Start engine.

- Voltage at plug min. 12 V. If not, test the following leads for continuity (set value approx. 0 Ω):
 - From term. 34M to central ground.
 - From term. 48 to control-unit plug term. 9.
- Resistance of auxiliary-air device 30...65 Ω (plug disconnected).
If resistance outside tolerance, replace auxiliary-air device.

Yes

Continued on D17/D18



- 1 = Fuel-distribution pipe
- 2 = Pressure regulator
- 3 = Temperature regulator
- 4 = Auxiliary-air device
- 5 = Coolant distributor

D 15

Engine starts but then dies

Peugeot 505 GTI



D 16

Engine starts but then dies

Peugeot 505 GTI



Engine starts but then dies (continued)

yes

Are all hose lines correctly attached, not kinked or damaged? Visual examination.

- Air-intake system checked for leaks with 0.3 bar gauge pressure?

no

- Check whether hoses of air-intake system and of fuel line system are correctly attached, not kinked or damaged. If necessary, replace hoses. Eliminate leaks by means of new seals or by re-tightening the connecting screws.

• Leak test:

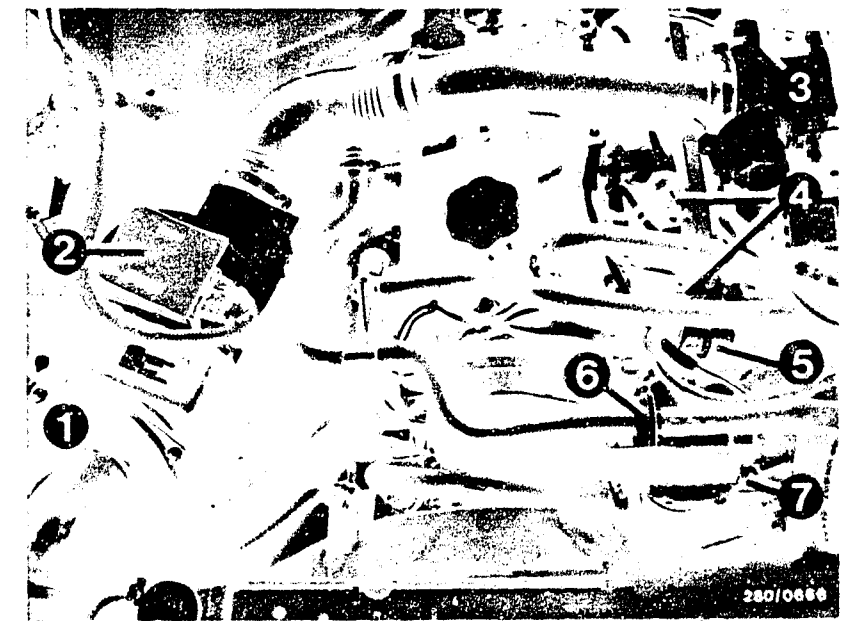
Seal off exhaust tail pipe.

Unscrew air-flow sensor from air-filter housing and seal off air-flow sensor duct.

Pull off hose after auxiliary air device and, using compressed-air gun, blow air (0,3 bar gauge pressure) into the intake manifold. Seal off connection port on auxiliary-air device. Open throttle valve fully while doing this. Brush or spray all joints with soapy water. Leaks may also occur at the following points on the engine: Oil dipstick incorrectly inserted, defective oil filler neck lid seal etc. Bubbling or foaming indicates a leak.

yes

Continued on D19/D20



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II
(concealed under auxiliary-air device)

D17

Engine starts but then dies
Peugeot 505 GTI



D18

Engine starts but then dies
Peugeot 505 GTI



Engine starts but then dies (continued)

yes

Trouble-shooting program for
customer complaint

"Engine starts but then dies"

Fault remedied?

no

Further possibilities:

- Customer complaint incorrectly diagnosed (see Coordinates B 3...B 8).
If the fault has not been detected by "direct trouble-shooting", see "detailed trouble-shooting". (Coordinates B 3/B 4).
- Engine not mechanically O.K. (Compression, valve setting, valve timing, worn camshaft).

D 19

Engine starts but then dies

Peugeot 505 GTI



D 20

Engine starts but then dies

Peugeot 505 GTI



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

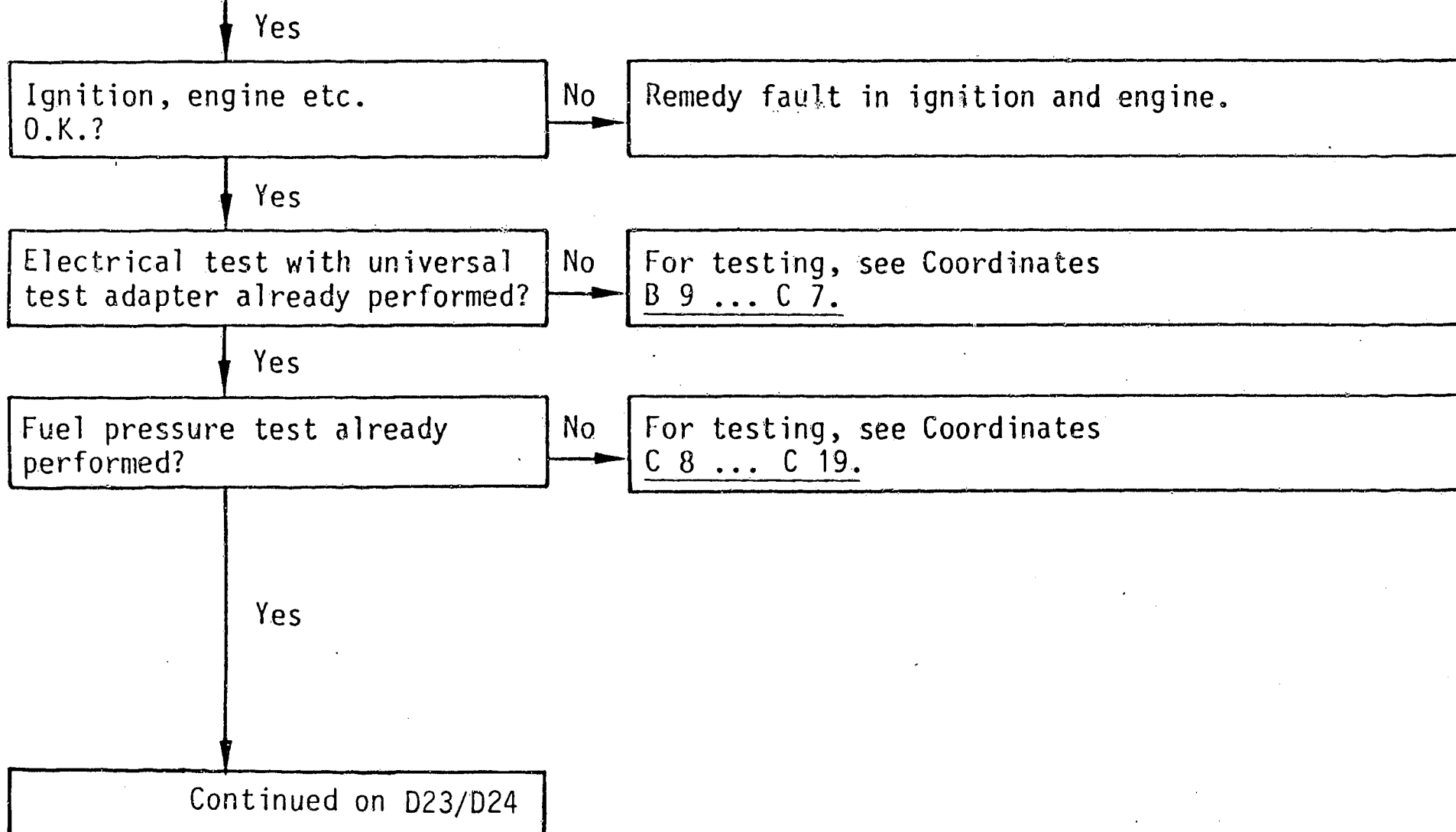
- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

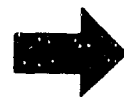
START OF TROUBLE-SHOOTING

UNEVEN IDLE, INCORRECT IDLE SPEED



D21

Uneven idle
Peugeot 505 GTI



D22

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

Yes

Throttle valve closed?

- Throttle lever coming up against stop screw?
- Throttle cable free of tension?
- Throttle cable without kinks?

No

- Testing:
Check whether the throttle valve can be closed still further and whether the engine speed thereby drops.
- Adjusting the throttle valve:
Throttle valve must come up against the stop screw with the throttle lever just before it sticks. Lock stopscrew with lock nut.
- If throttle cable kinked - replace.

Yes

Throttle-valve switch correctly adjusted?

- Idle contact closing?
- Microswitch can be heard to click?

No

- Adjusting the throttle-valve switch
Slightly loosen the throttle-valve switch fastening screws. Connect ohmmeter to throttle-valve switch between term. 2 and lead 9 (term. 18). Turn throttle-valve switch in a counter-clockwise direction until the idle contact closes (microswitch can be heard to click).
Reading 0 Ω .
- Checking the adjustment:
Pull slightly on throttle cable. The idle contact opens (microswitch can be heard to click).
Reading $\infty \Omega$.

Yes

Time delay relay O.K.?

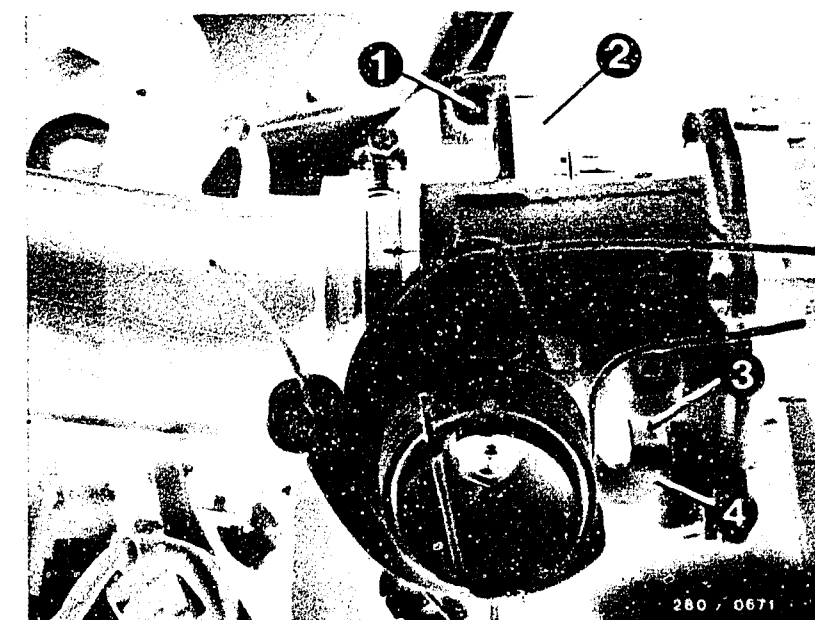
- Voltage after approx. 1 sec.?

No

- Testing:
Voltage measurement at term. 2A of time-delay relay to ground. With the engine running, slightly open the throttle valve and close again. Reading after approx. 1 sec.: 8...15 V.
If not, replace time-delay relay.

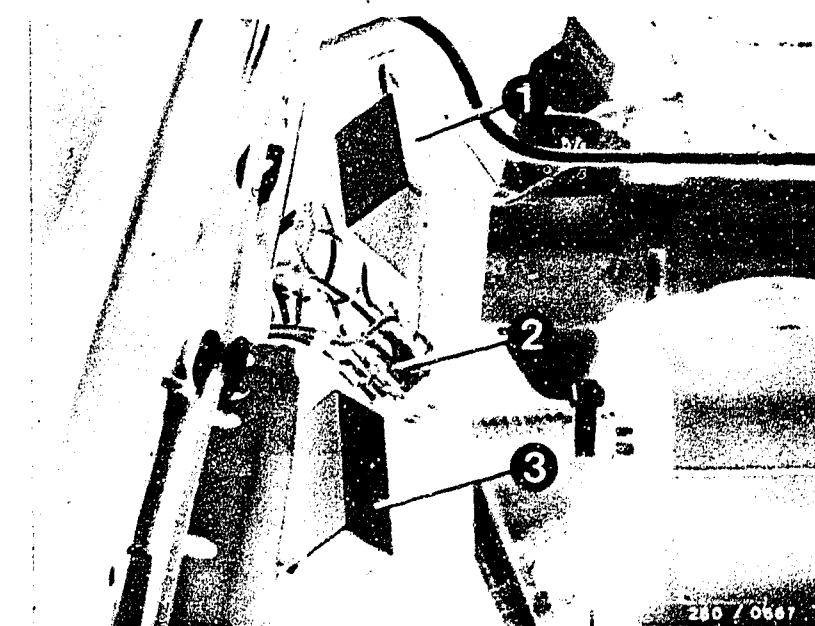
Yes

Continued on E1/E2



- 1 = Fastening screws
- 2 = Throttle-valve switch
- 3 = Throttle-valve stop screw
- 4 = Throttle lever

- 1 = Control relay
- 2 = Central ground
- 3 = Time-delay relay on holding plate of firewall



D23

Uneven idle
Peugeot 505 GTI



D24

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

Yes

Idle speed and CO
correctly adjusted?

No

Yes

Can idle speed not be
adjusted?

Yes

- Idle-speed and CO adjustment

Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal operating temperature and at idle speed.

- Idle speed

Manually-shifted transmission:
Automatic:

700...800 min⁻¹
850...950 min⁻¹

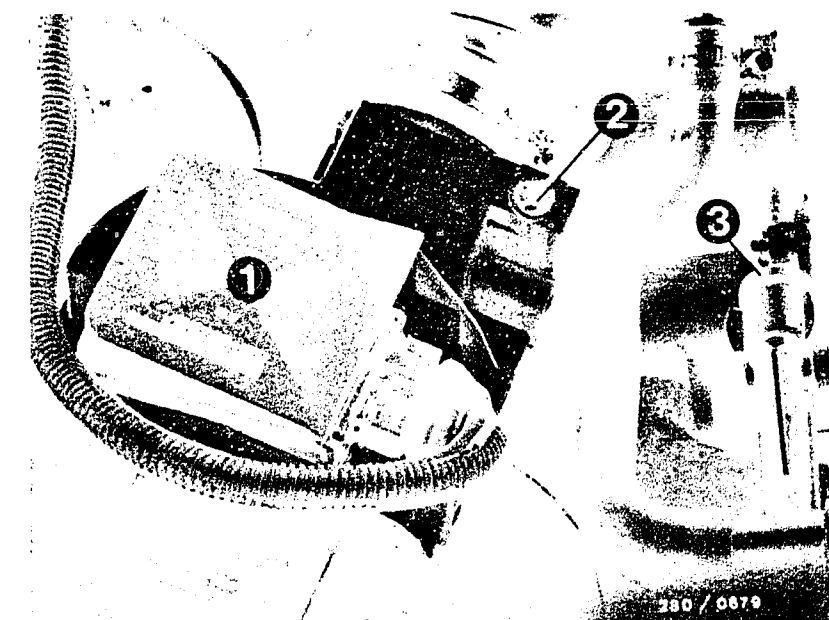
- CO concentration

Europe:

0.5...1.5% by vol.

In all vehicles:

If CO concentration too high, turn CO adjusting screw in air-flow sensor half a turn in a counterclockwise direction (hexagon-socket-head cap screw AF = 5 mm). Check idle speed and CO concentration again. If necessary, make corrections in several steps. After adjusting, use new red plug (1 280 508 012).



1 = Air-flow sensor

2 = CO adjusting screw

3 = Idle-speed adjusting screw

Continued on E3/E4

E1

Uneven idle

Peugeot 505 GTI



E2

Uneven idle

Peugeot 505 GTI



Uneven idle, incorrect idle speed

yes

Auxiliary-air device mechanically O.K.?

Free cross section:

- cold - open?
- warm - closed?
- drop in engine speed if hose is pinched off? (cold engine)

no

Testing:

- Visual examination of auxiliary-air device
Disconnect hoses and look down (possibly using a small mirror). When cold, the cross-section must be partially open; when the engine is warm it must be closed. If not, replace auxiliary-air device.
- Functional test of auxiliary-air device:
With the engine cold, pinch off hose to auxiliary-air device. Engine speed must drop. With engine warm, pinch off hose to auxiliary-air device. Engine speed must not drop noticeably. If not, replace auxiliary-air device (pay attention to direction of flow).

yes

Continued on E5/E6



- 1 = Fuel-distribution pipe
- 2 = Pressure regulator
- 3 = Temperature sensor
- 4 = Auxiliary-air device
- 5 = Coolant distributor

E3

Uneven idle
Peugeot 505 GTI



E4

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

yes

Electrical operation of auxiliary-air device (power supply, ground lead, resistance) O.K.?

no

Start engine.

- Voltage at plug min. 12 V. If not, test the following leads for continuity (set value approx. 0 Ω):
 - From term. 34M to central ground.
 - From term. 48 to control-unit plug term. 9.
- Resistance of auxiliary-air device 30...65 Ω (plug disconnected).
If resistance outside tolerance, replace auxiliary-air device.

yes

Continued on E7/E8

E5

Uneven idle

Peugeot 505 GTI



E6

Uneven idle

Peugeot 505 GTI



uneven idle, incorrect idle speed (continued)

yes

Injection valves checked for proper operation?

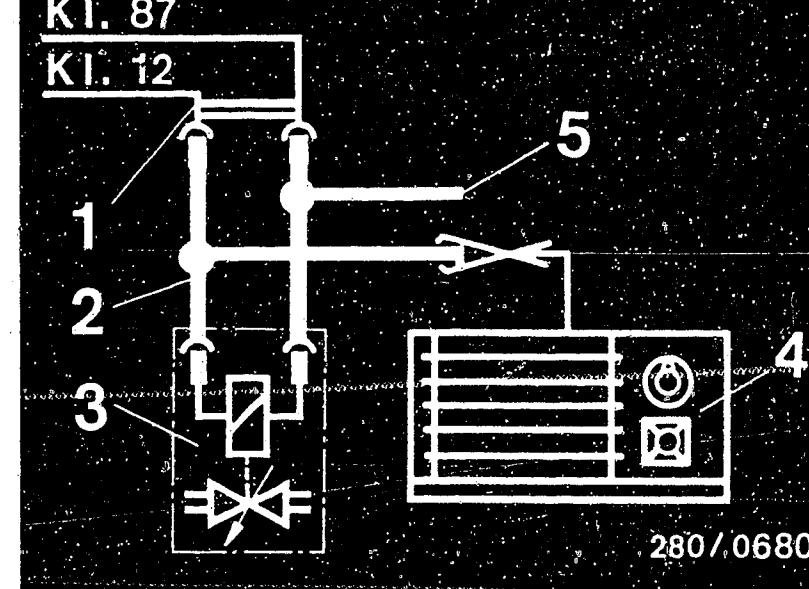
- Injection pulses without interference or missing?
- Lines correctly routed?
- No loose contacts in plug-in connections?

no

- Connect the test lead as follows:
The two-pole plug connectors of the test leads are connected between an injection valve and its connecting lead. Of the other two terminals of the test lead, only one must be connected to the special input of the motortester.
- Caution:
Free terminal must not come into contact with vehicle body!
- When the correct terminal is connected, the diagram shown opposite is visible. Using the test lead, the injection pulses at the injection valves can be tested with an ignition oscilloscope with the engine running. If the diagram opposite is not obtained or if there are deviations (interference, missing etc.), the other injection valves should also be tested.
- In case of interference: check routing of leads.
- In case of missing, eliminate loose contacts in leads or in plug-in connections.

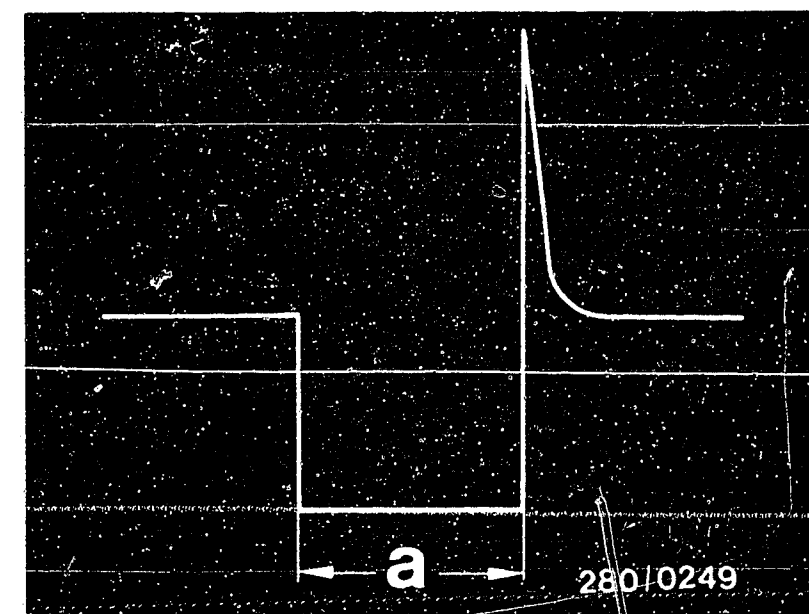
yes

Continued on E9/E10



- 1 = Connector of valve lead
- 2 = Test lead 1 684 463 093
- 3 = Injection valve
- 4 = Motortester
- 5 = Free connection
(do not ground!)

Injection pulses of a switched output stage (measured at the injection valve)
a = Pulse length (dependent on engine load)



E7

Uneven idle
Peugeot 505 GTI



E8

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

Yes

Injection valves mechanically O.K.?

- Does engine speed drop if injection-valve connectors are pulled off individually?
- O-rings O.K.?
- Repair injection valves.

No

With the engine running, disconnect the injection-valve connectors individually one after the other from the injection valves and plug on again. Engine speed must drop if injection valve is O.K.

Caution!

If replacing injection valves, install solenoid-operated injection valve 0 280 150 209. If injection valves are O.K. but O-rings are defective, proceed as follows:

• Repair instructions

Remove fuel-distribution pipe. Pull off electrical connector. Carefully slide holding clamps out of groove and withdraw injection valve from fuel-distribution pipe.

Caution!

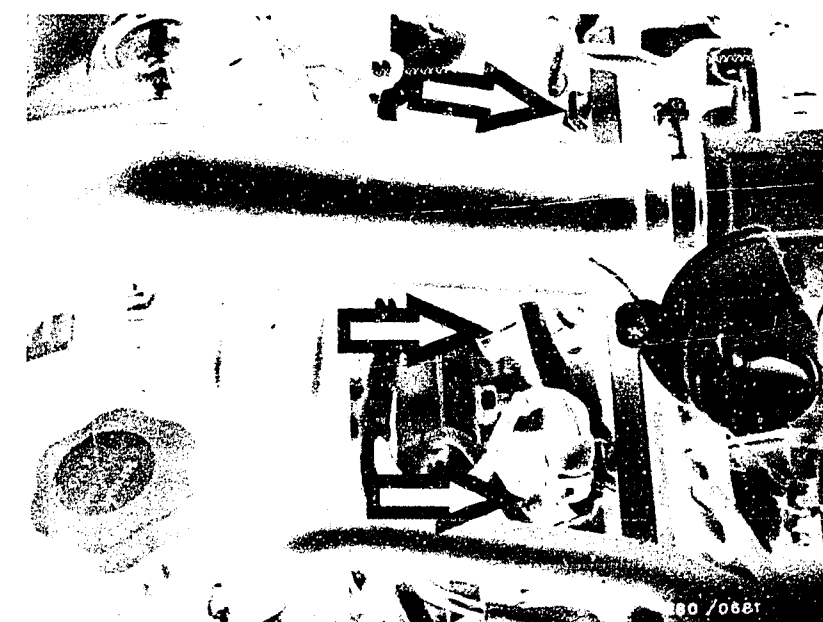
Catch any escaping fuel. Do not allow to drip onto hot parts of the engine.

Caution!

Protection sleeve must not be levered off.

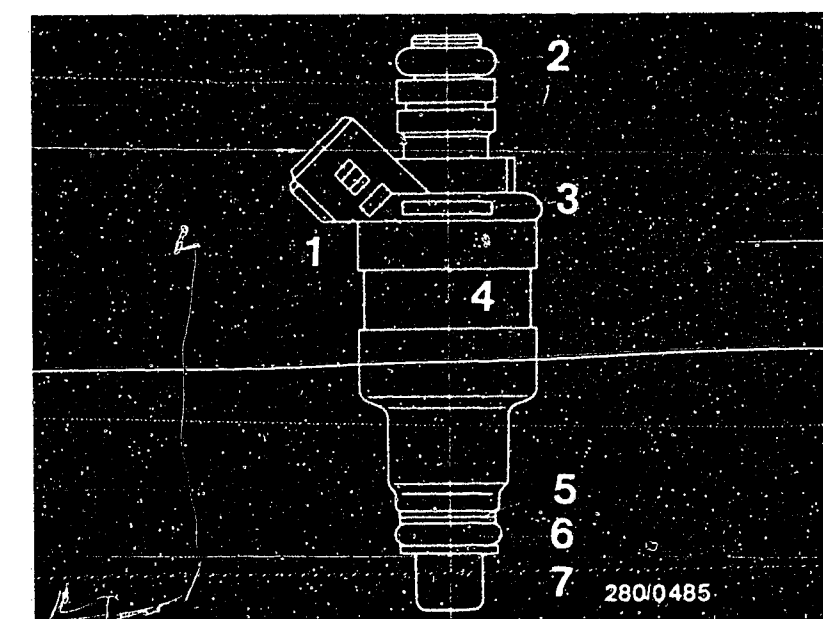
Yes

Continued on E11/E12



Arrows = Injection valves

- 1 = FD mark
- 2 = Upper O-ring
- 3 = Part number
- 4 = Injection valve
- 5 = Supporting plate
- 6 = Lower O-ring
- 7 = Protection sleeve



E9

Uneven idle

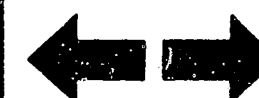
Peugeot 505 GTI



E10

Uneven idle

Peugeot 505 GTI



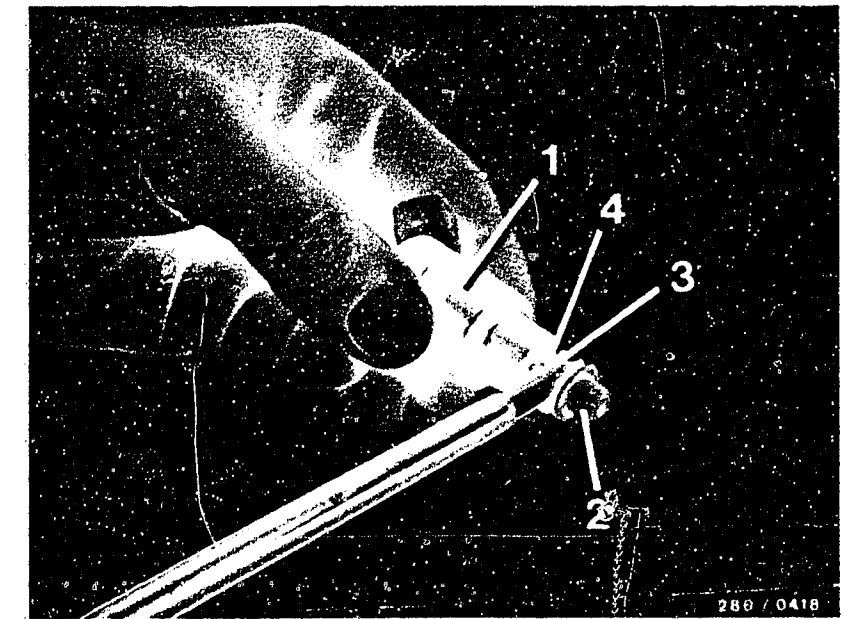
Repair injection valves.
Protection sleeve and O-ring O.K.?

No

Cut off lower O-ring (intake tube).
Caution! Do not damage protection sleeve.
Fit new O-ring over protection sleeve and its bead. Do not damage any parts.
Use parts set 1 287 010 704. Do not damage the valve needle when working on injection valves. If the upper O-ring (fuel-distribution pipe connection) is swollen or damaged, it must also be replaced.

Yes

Continued on E13/E14



- 1 = Injection valve
- 2 = Protection sleeve
- 3 = Lower O-ring
- 4 = Supporting plate

E11

Uneven idle
Peugeot 505 GTI



E12

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):
60...1000 Ω

No

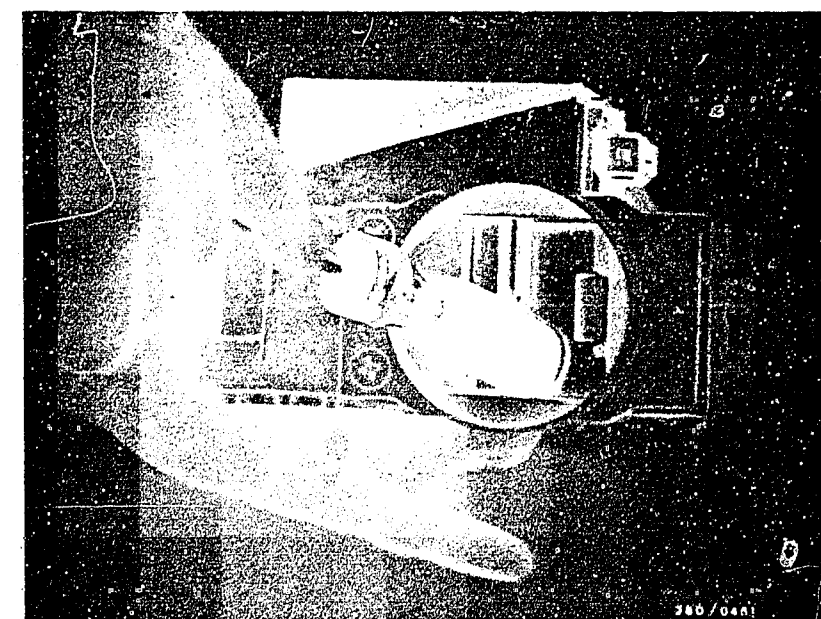
Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.
- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent. The air-flow sensor must be replaced.
- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.
Test specification: 160...300 Ω
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.
Test specification: 60...1000 Ω

Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

Yes

Continued on E15/E16



Opening the air-flow sensor flap.

E13

Uneven idle
Peugeot 505 GTI



E14

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)

yes

Are all hose lines correctly attached, not kinked or damaged? Visual examination.

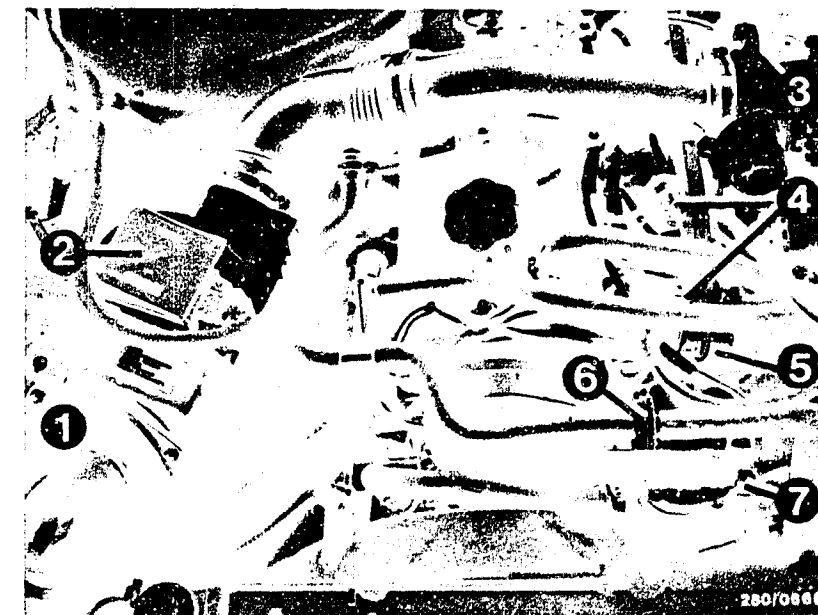
- Air-intake system checked for leaks with 0.3 bar gauge pressure?

no

- Check whether hoses of air-intake system and of fuel line system are correctly attached, not kinked or damaged. If necessary, replace hoses. Eliminate leaks by means of new seals or by re-tightening the connecting screws.
- Leak test:
Seal off exhaust tail pipe.
Unscrew air-flow sensor from air-filter housing and seal off air-flow sensor duct.
Pull off hose after auxiliary air device and, using compressed-air gun, blow air (0,3 bar gauge pressure) into the intake manifold. Seal off connection port on auxiliary-air device. Open throttle valve fully while doing this. Brush or spray all joints with soapy water. Leaks may also occur at the following points on the engine: Oil dipstick incorrectly inserted, defective oil filler neck lid seal etc. Bubbling or foaming indicates a leak.

yes

Continued on E17/E18



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II (concealed under auxiliary-air device)

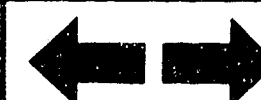
E15

Uneven idle
Peugeot 505 GTI

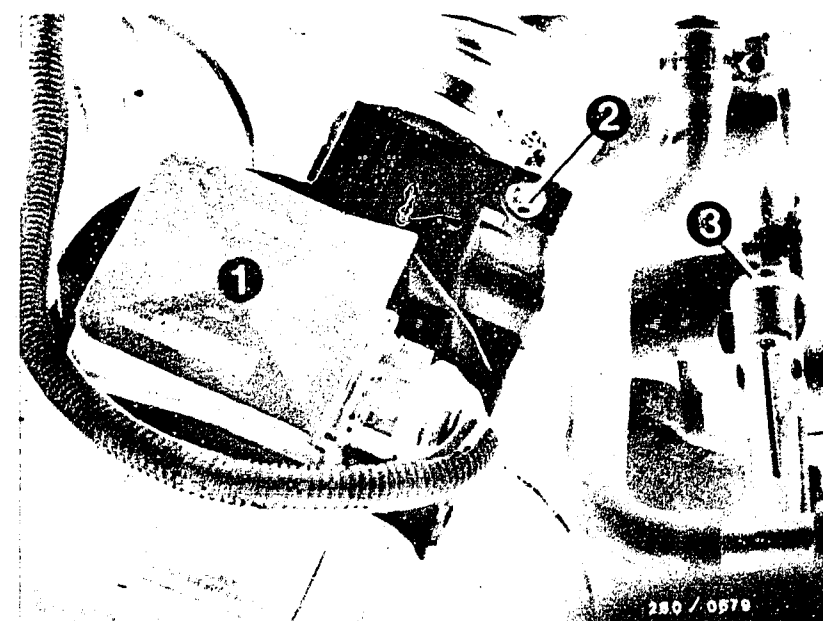
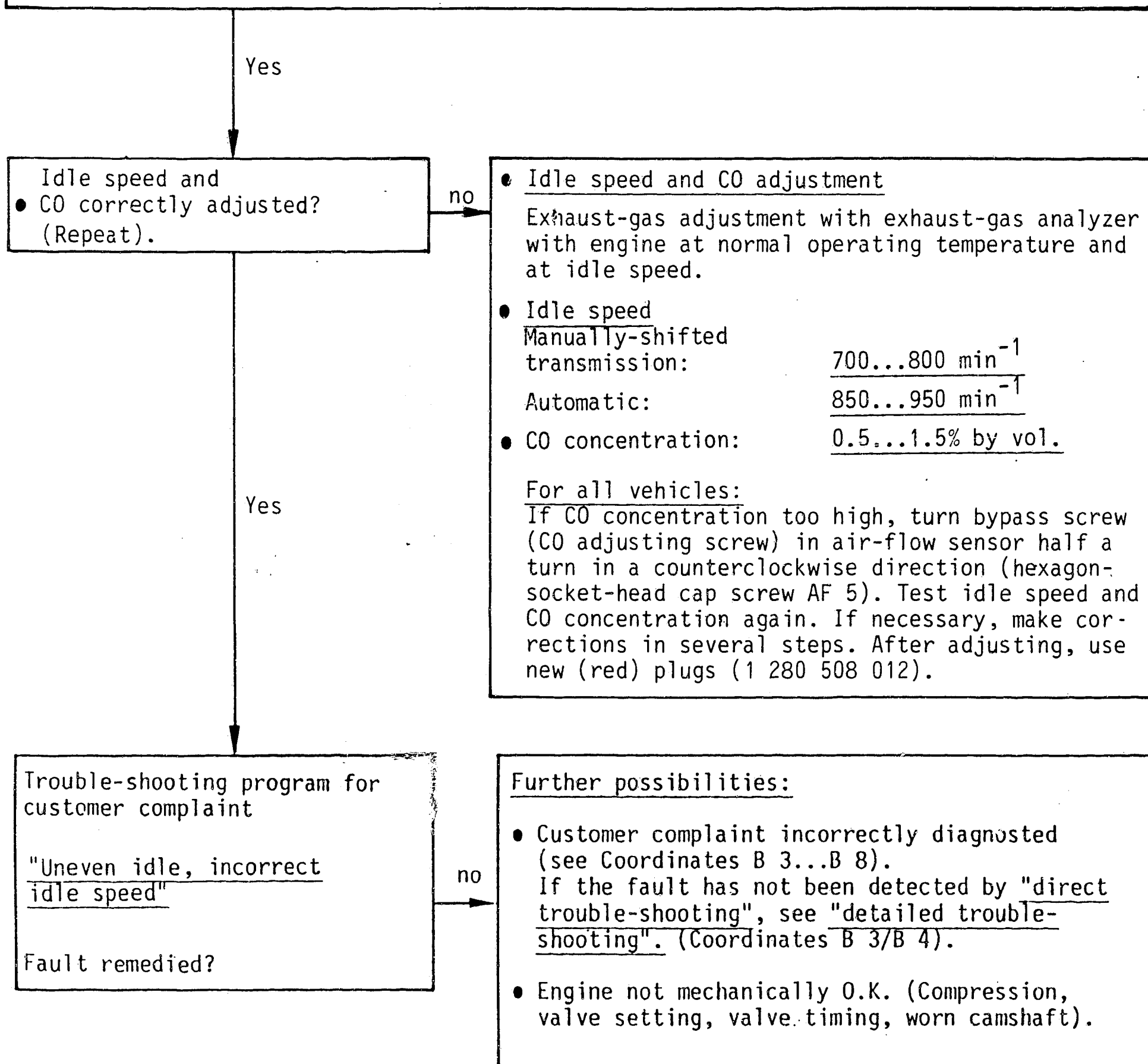


E16

Uneven idle
Peugeot 505 GTI



Uneven idle, incorrect idle speed (continued)



1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

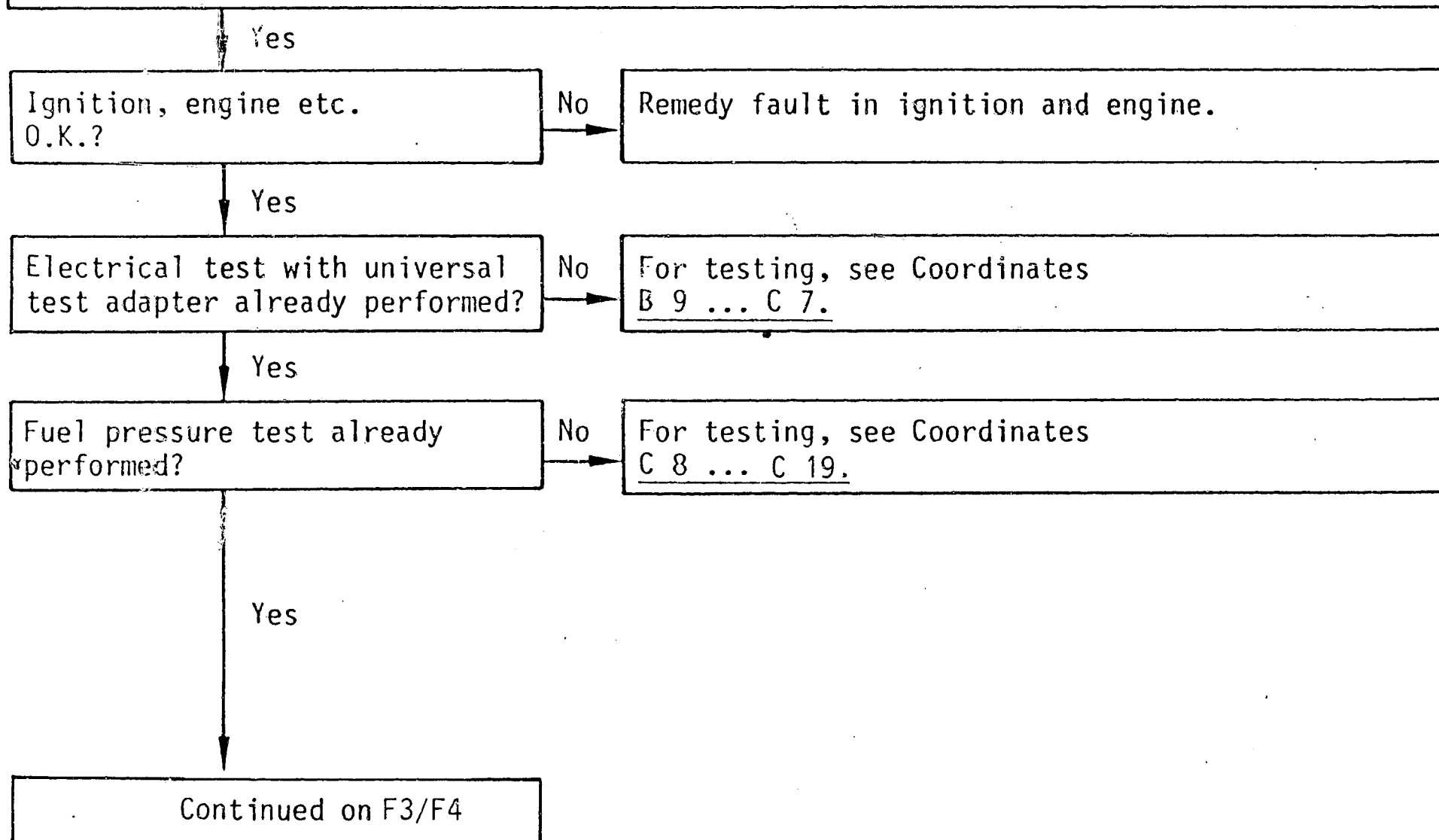
- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

POOR THROTTLE TAKE-UP

**F1**

Poor throttle take-up
Peugeot 505 GTI

**F2**

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)

Yes

Throttle valve closed?

- Throttle lever coming up against stop screw?
- Throttle cable free of tension?
- Throttle cable without kinks?

No

- Testing:
Check whether the throttle valve can be closed still further and whether the engine speed thereby drops.
- Adjusting the throttle valve:
Throttle valve must come up against the stop screw with the throttle lever just before it sticks. Lock stopscrew with lock nut.
- If throttle cable kinked - replace.

Yes

Throttle-valve switch correctly adjusted?

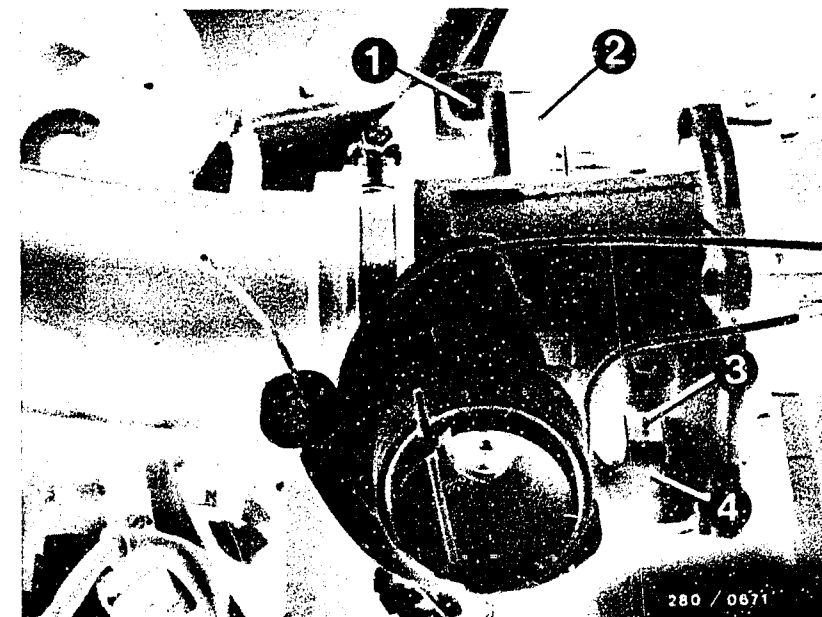
- Idle contact closing?
- Microswitch can be heard to click?

No

- Adjusting the throttle-valve switch
Slightly loosen the throttle-valve switch fastening screws. Connect ohmmeter to throttle-valve switch between term. 2 and lead 9 (term. 18). Turn throttle-valve switch in a counter-clockwise direction until the idle contact closes (microswitch can be heard to click).
Reading 0 Ω .
- Checking the adjustment:
Pull slightly on throttle cable. The idle contact opens (microswitch can be heard to click).
Reading $\infty \Omega$.

Yes

Continued on F5/F6



- 1 = Fastening screws
- 2 = Throttle-valve switch
- 3 = Throttle-valve stop screw
- 4 = Throttle lever

F3

Poor throttle take-up
Peugeot 505 GTI



F4

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)

Yes

Auxiliary-air device mechanically O.K.?

Free cross section:

- cold - open?
- warm - closed?
- drop in engine speed if hose is pinched off? (cold engine).

No

Testing:

- Visual examination of auxiliary-air device
Disconnect hoses and look down (possibly using a small mirror). When cold; the cross-section must be partially open; when the engine is warm it must be closed. If not, replace auxiliary-air device.
- Functional test of auxiliary-air device:
With the engine cold, pinch off hose to auxiliary-air device. Engine speed must drop. With engine warm, pinch off hose to auxiliary-air device. Engine speed must not drop noticeably. If not, replace auxiliary-air device (pay attention to direction of flow).

Yes

Electrical operation of auxiliary-air device (power supply, ground lead, resistance) O.K.?

No

Start engine.

- Voltage at plug min. 12 V. If not, test the following leads for continuity (set value approx. 0 Ω):
 - From term. 34M to central ground.
 - From term. 48 to control-unit plug term. 9.
- Resistance of auxiliary-air device 30...65 Ω (plug disconnected).
If resistance outside tolerance, replace auxiliary-air device.

Yes

Continued on F7/F8



- 1 = Fuel-distribution pipe
- 2 = Pressure regulator
- 3 = Temperature sensor
- 4 = Auxiliary-air device
- 5 = Coolant distributor

F5

Poor throttle take-up
Peugeot 505 GTI



F6

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):
60...1000 Ω

No

Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.
- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent.

The air-flow sensor must be replaced.

- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.

Test specification: 160...300 Ω

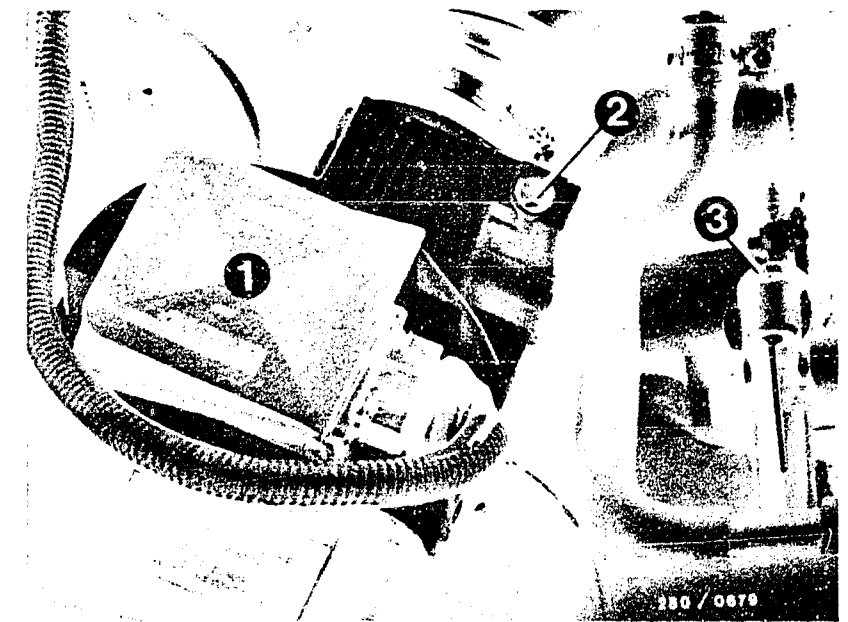
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.

Test specification: 60...1000 Ω

Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

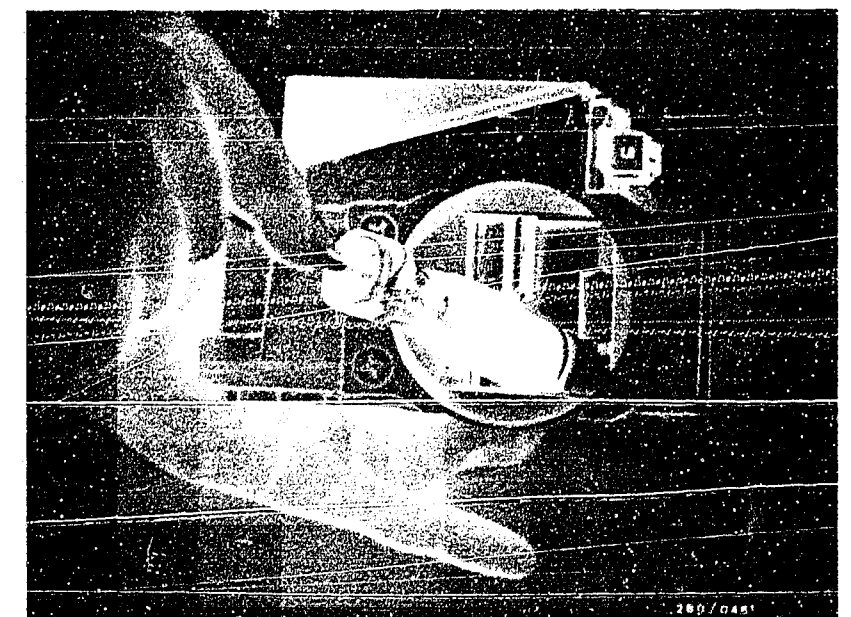
Yes

Continued on F9/F10



- 1 = Air-flow sensor
- 2 = CO adjusting screw
- 3 = Idle-speed adjusting screw

Opening the air-flow sensor flap



F7

Poor throttle take-up
Peugeot 505 GTI



F8

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)

Yes

Air-flow sensor, potentiometer
O.K.?

- Potentiometer wiper track
O.K.?
- Correct stroke signal?

No

Potentiometer test: (noise test)

- Unscrew air-flow sensor from air filter housing and loosen hose clamp. Leave plug on. Set motortester to special input and, using the special cable, connect to air-flow sensor term. 7 (red clip) and term. 5 (black clip).

• Making up the adapter lead:

User fabrication: two approx. 1 m long leads with approx. 1.0 mm² cross section and 10 A fuse. 2 test prods are attached on one end. On the other strip off approx. 2 cm of insulation and connect the clamps of the special input connecting lead.

Caution!

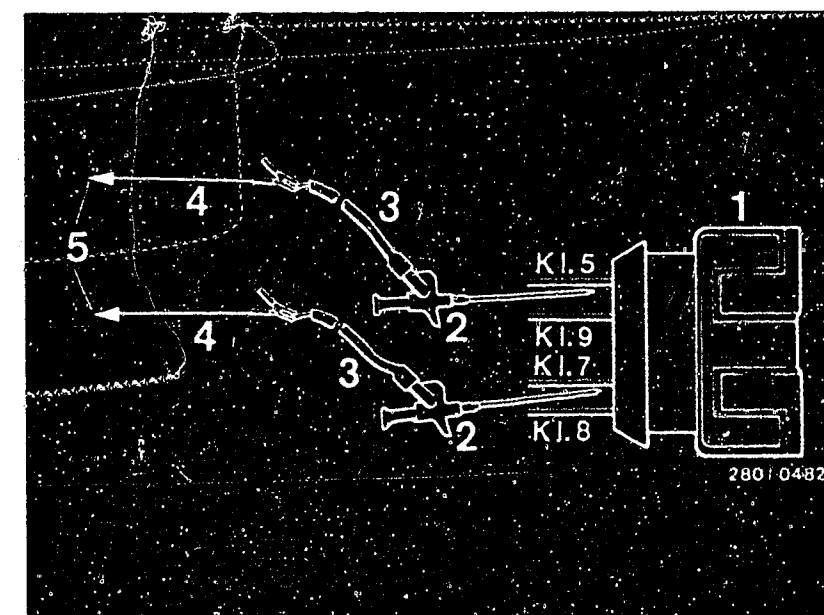
Insulate bare connecting points of adapter lead (danger of short circuit). Measure carefully into the plug of the air-flow sensor. Do not bend any contact springs. Set control lever for image adjustment on motortester all the way to the left (calibrated setting).

- Disconnect control relay. Insert jumper between term. 87 and term. 30 in connection base. (Power supply through control unit).

Yes

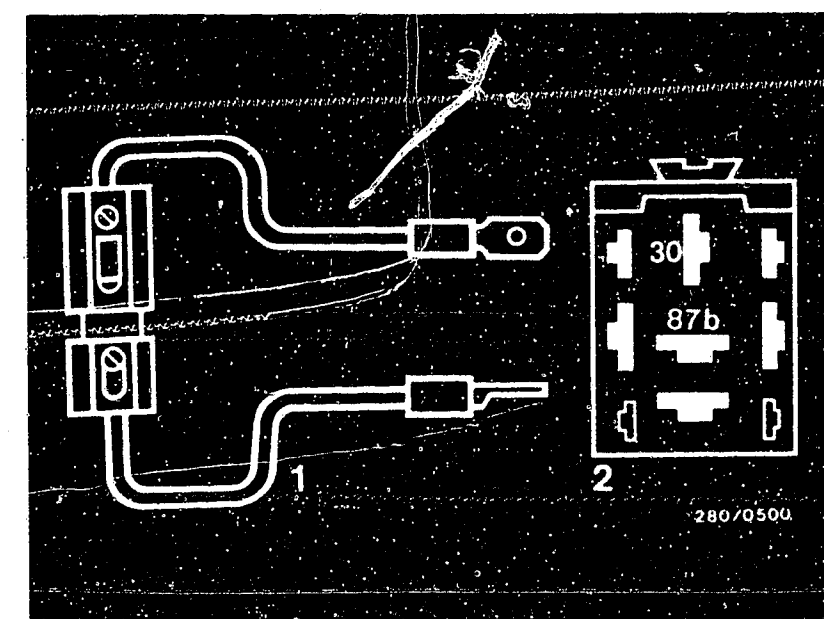
Continued on F13/F14

Continued on F11/F12



- 1 = Air-flow sensor plug
- 2 = Test prod
- 3 = Adapter lead (user-fabricated)
- 4 = Special input connecting cable
- 5 = Motortester special input

- 1 = Jumper with fuse holder
- 2 = Top view of connection base



F9

Poor throttle take-up
Peugeot 505 GTI



F10

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)

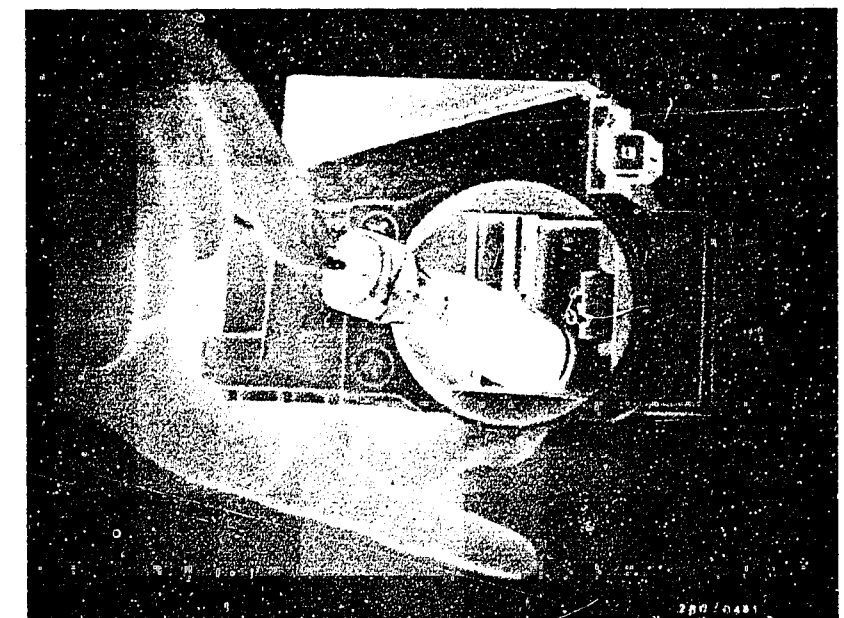
- Deflect air-flow sensor flap suddenly several times. If air-flow sensor O.K., a continuous signal must be visible on the oscilloscope. If air-flow sensor defective, there appears a noise signal similar to the one in the diagram opposite. Replace air-flow sensor. Disconnect adapter lead after testing and push on rubber sleeve properly.

Mount air-flow sensor. Connect all hoses and tighten (leaks).

Caution! After testing, remove the jumper and connect the control relay.

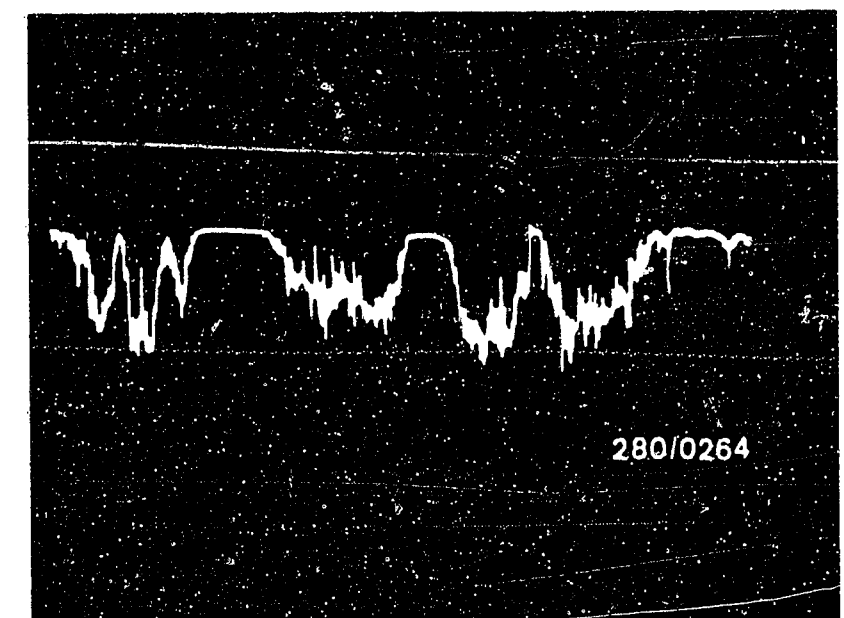
Yes

Continued on F13/F14



Opening the air-flow sensor flap.

Noise signal if air-flow sensor defective.



F11

Poor throttle take-up

Peugeot 505 GTI



F12

Poor throttle take-up

Peugeot 505 GTI



Poor throttle take-up (continued)

yes

Are all hose lines correctly attached, not kinked or damaged? Visual examination.

- Air-intake system checked for leaks with 0.3 bar gauge pressure?

no

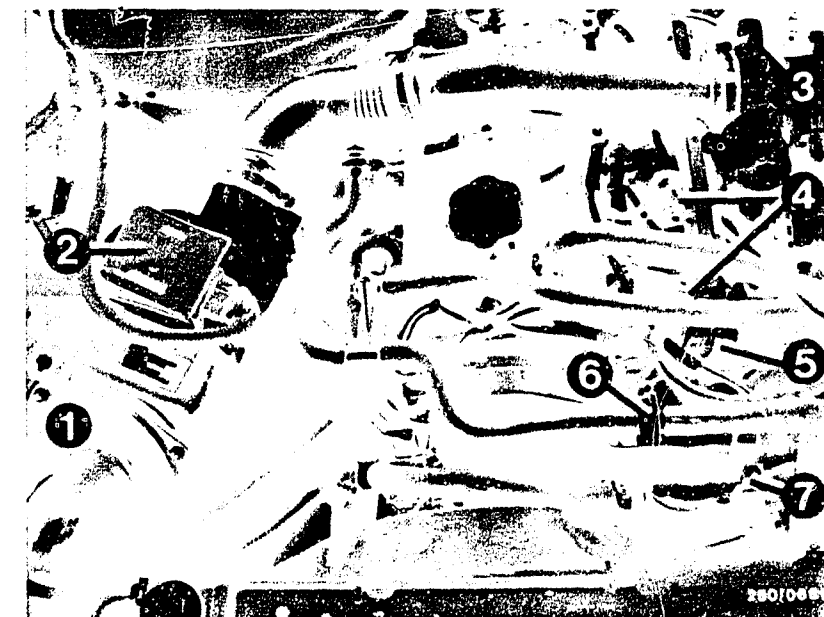
- Check whether hoses of air-intake system and of fuel line system are correctly attached, not kinked or damaged. If necessary, replace hoses. Eliminate leaks by means of new seals or by re-tightening the connecting screws.

Leak test:

Seal off exhaust tail pipe.
Unscrew air-flow sensor from air-filter housing and seal off air-flow sensor duct.
Pull off hose after auxiliary air device and, using compressed-air gun, blow air (0,3 bar gauge pressure) into the intake manifold. Seal off connection port on auxiliary-air device. Open throttle valve fully while doing this. Brush or spray all joints with soapy water. Leaks may also occur at the following points on the engine: Oil dipstick incorrectly inserted, defective oil filler neck lid seal etc.
Bubbling or foaming indicates a leak.

yes

Continued on F15/F16



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II (concealed under auxiliary-air device)

F13

Poor throttle take-up
Peugeot 505 GTI

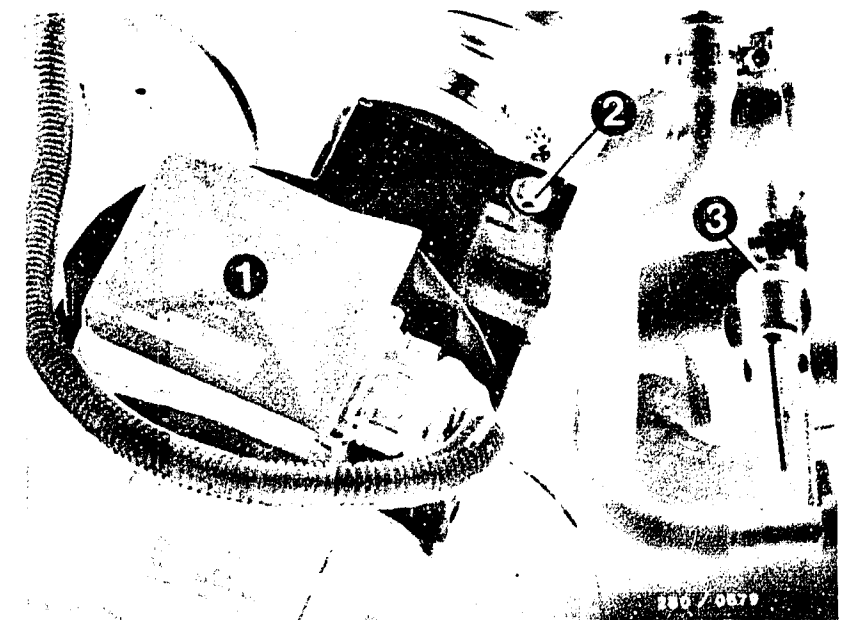
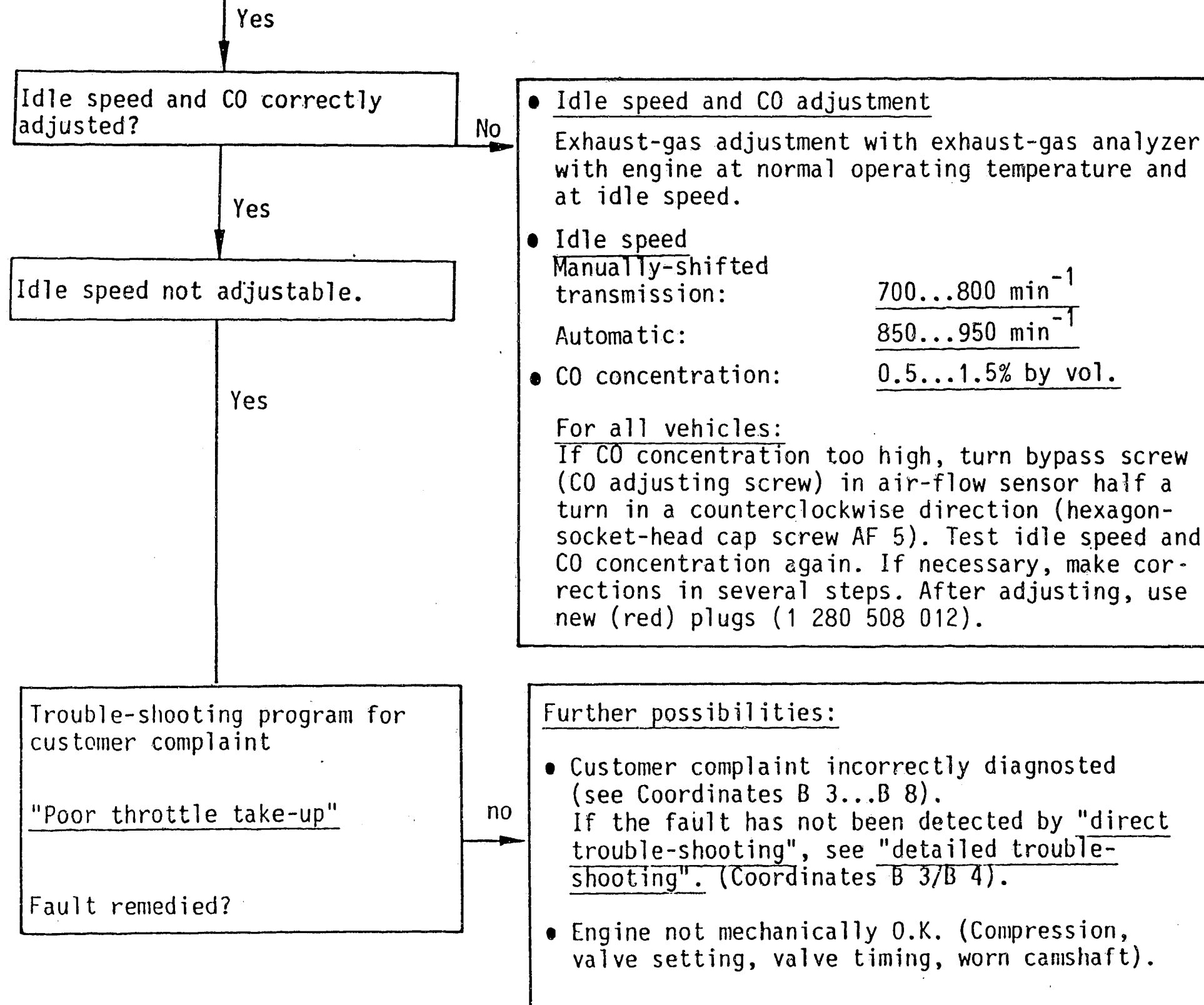


F14

Poor throttle take-up
Peugeot 505 GTI



Poor throttle take-up (continued)



1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw

F15

Poor throttle take-up
Peugeot 505 GTI



F16

Poor throttle take-up
Peugeot 505 GTI



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

ENGINE MISSING UNDER ALL OPERATING CONDITIONS

Yes

Ignition, engine etc.
O.K.?

No

Remedy fault in ignition and engine.

Yes

Electrical test with universal
test adapter already performed?

No

For testing, see Coordinates
B 9 ... C 7.

Yes

Fuel pressure test already
performed?

No

For testing, see Coordinates
C 8 ... C 19.

Yes

Continued on F19/F20

F17

Engine missing
Peugeot 505 GTI

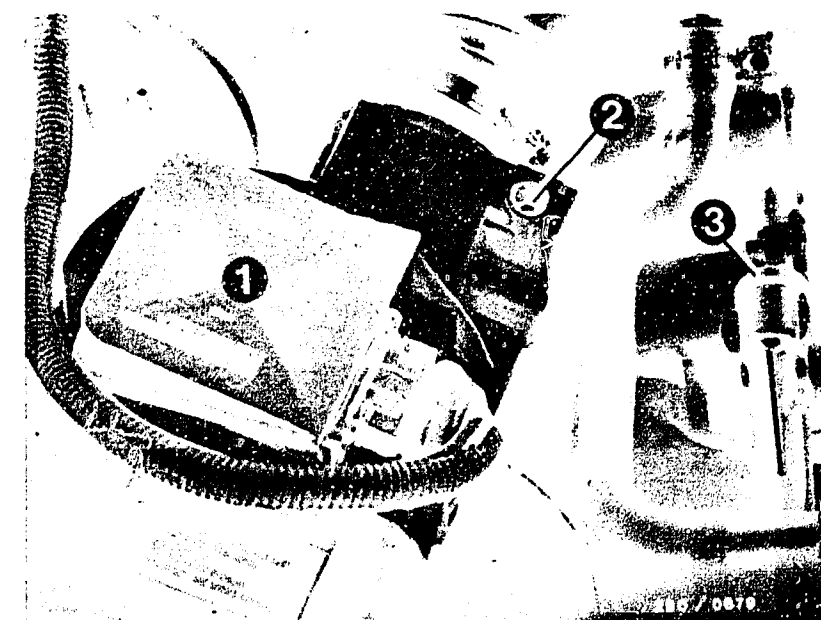
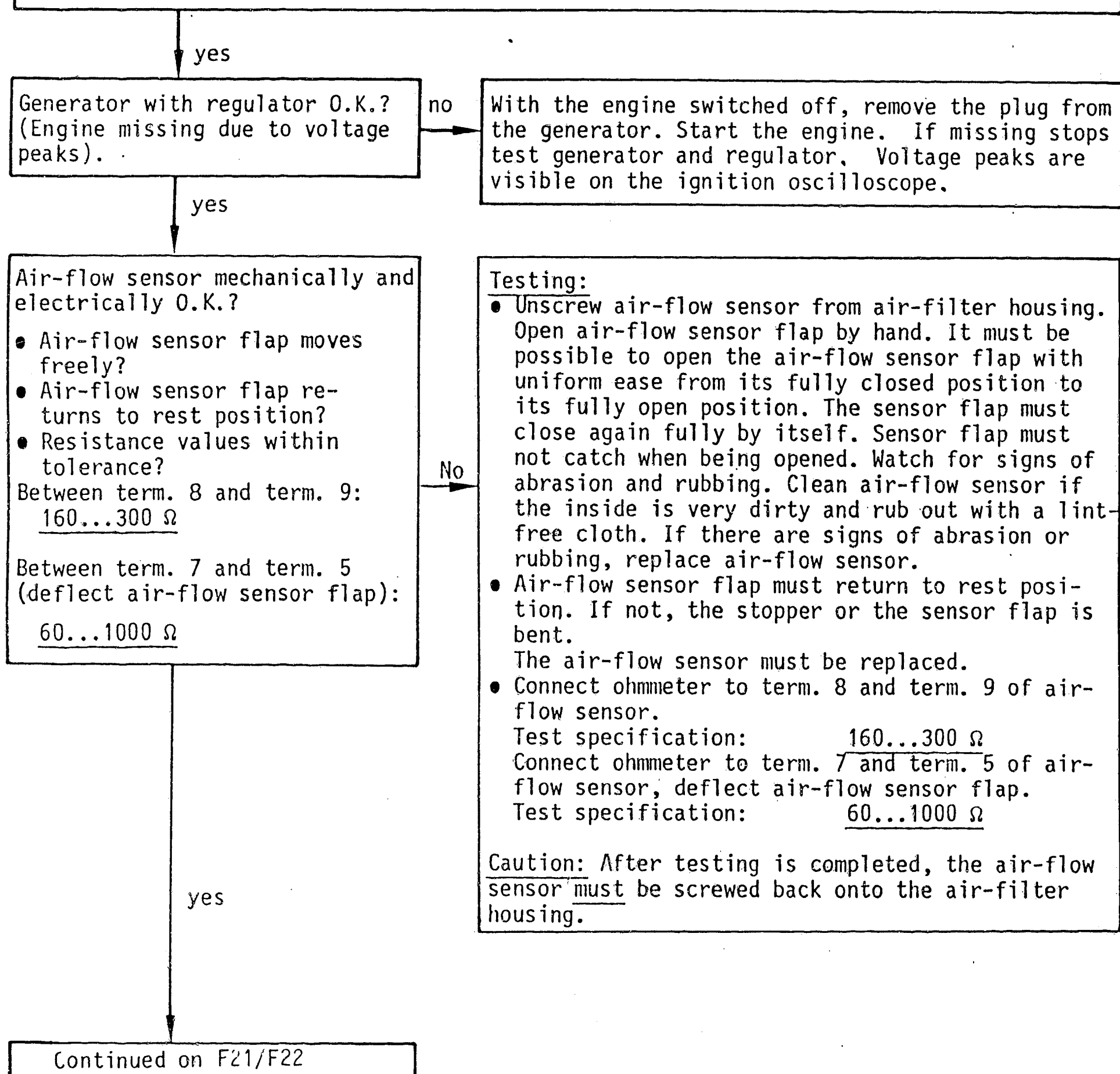


F18

Engine missing
Peugeot 505 GTI

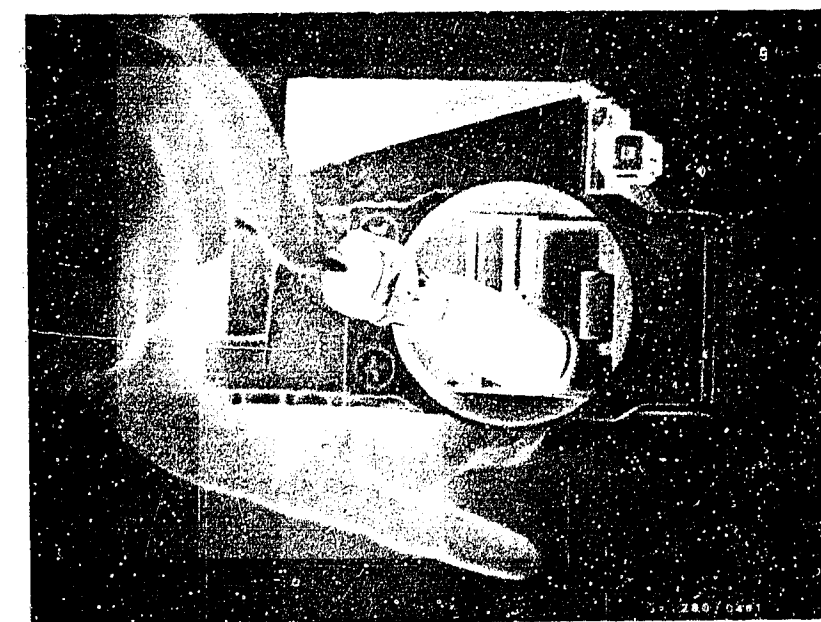


Engine missing under all operating conditions (continued)



1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw

Opening the air-flow sensor flap



Engine missing under all operating conditions (continued)

Yes

Air-flow sensor potentiometer O.K.?

- Potentiometer wiper track O.K.?
- Correct stroke signal?

No

Potentiometer test: (noise test)

- Unscrew air-flow sensor from air filter housing and loosen hose clamp. Leave plug on. Set motortester to special input and, using the special cable, connect to air-flow sensor term.7 (red clip) and term. 5 (black clip).

Making up the adapter lead:

User fabrication: two approx. 1 m long leads with approx. 1.0 mm² cross section and 10 A fuse. 2 test prods are attached on one end. On the other strip off approx. 2 cm of insulation and connect the clamps of the special input connecting lead.

Caution!

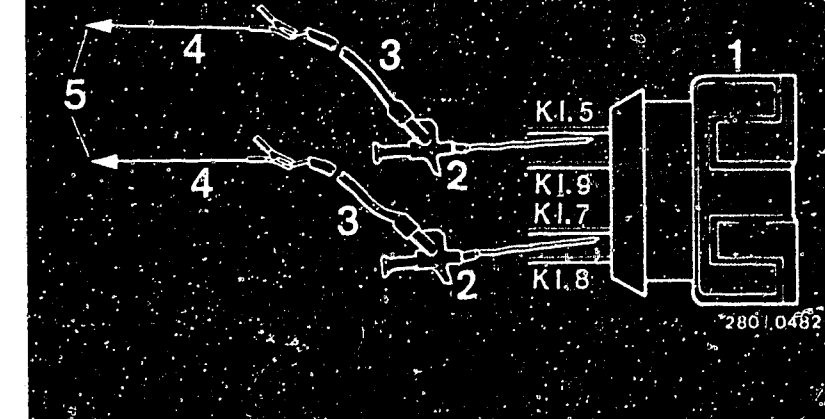
Insulate bare connecting points of adapter lead (danger of short circuit). Measure carefully into the plug of the air-flow sensor. Do not bend any contact springs. Set control lever for image adjustment on motortester all the way to the left (calibrated setting).

- Disconnect control relay. Insert jumper between term. 87 and term. 30 in connection base. (Power supply through control unit).

Yes

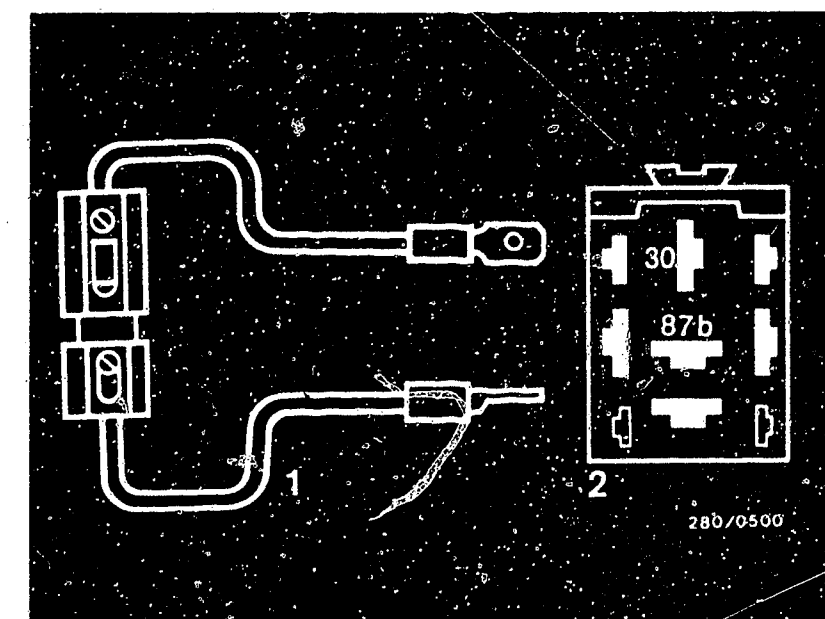
Continued on G1/G2

Continued on F23/F24



- 1 = Air-flow sensor plug
- 2 = Test prod
- 3 = Adapter lead (user-fabricated)
- 4 = Special input connecting cable
- 5 = Motortester special input

- 1 = Jumper with fuse holder
- 2 = Top view of connection base



F21

Engine missing
Peugeot 505 GTI



F22

Engine missing
Peugeot 505 GTI



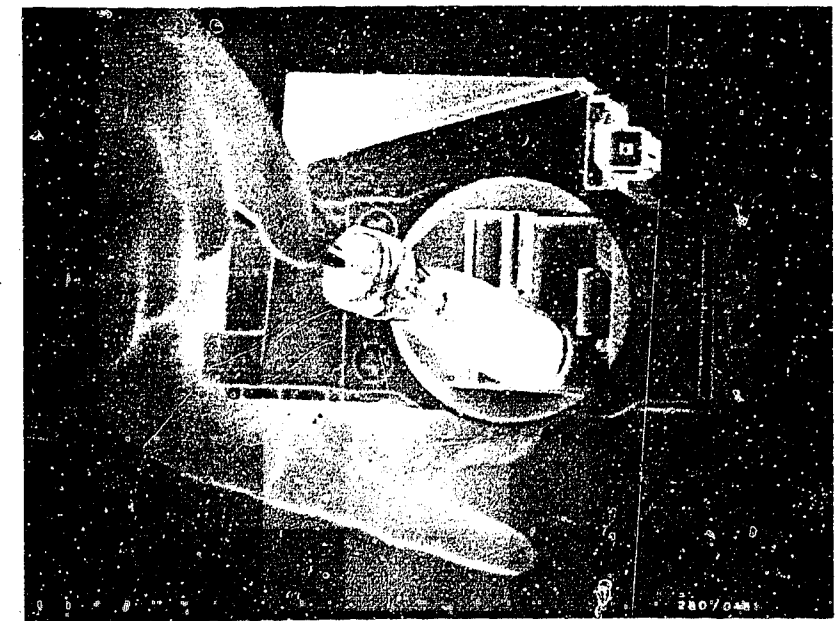
Engine missing under all operating conditions (continued)

- Deflect air-flow sensor flap suddenly several times. If air-flow sensor O.K., a continuous signal must be visible on the oscilloscope. If air-flow sensor defective, there appears a noise signal similar to the one in the diagram opposite. Replace air-flow sensor. Disconnect adapter lead after testing and push on rubber sleeve properly.
Mount air-flow sensor. Connect all hoses and tighten (leaks).

Caution! After testing, remove the jumper and connect the control relay.

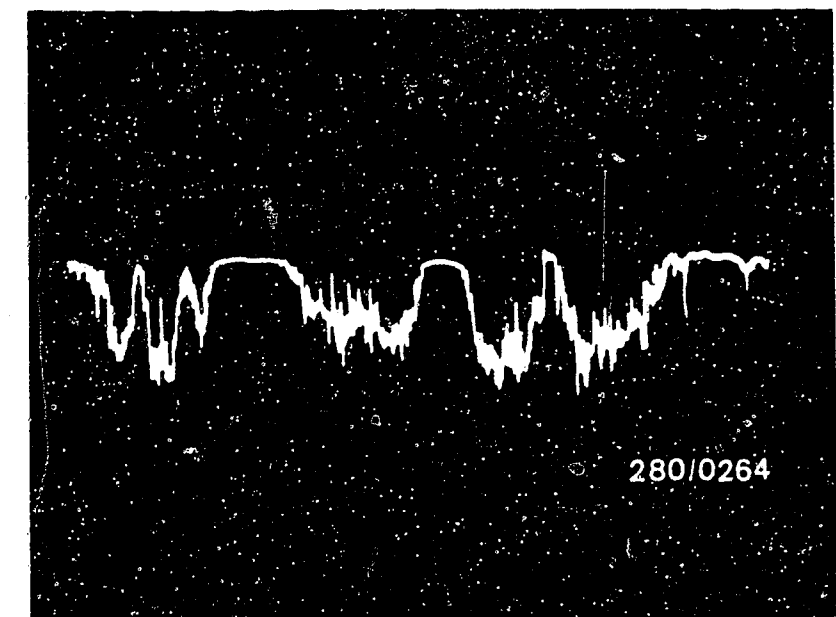
Yes

Continued on G1/G2



Opening the air-flow sensor flap.

Noise signal if air-flow sensor defective.



F23

Engine missing
Peugeot 505 GTI



F24

Engine missing
Peugeot 505 GTI



Engine missing under all operating conditions (continued)

Yes

Delivery of electric fuel pump
O.K.?

Test specification:
min. 700 cm³/30 s

no

- Measuring the fuel delivery:
For testing, loosen return hose from pressure regulator and connect separate hose line. Lead end of hose into a 5 l vessel with graduated scale.
Disconnect control relay. Connect jumper in connection base between term. 85b and term. 30. Electric fuel pump must operate.
Test specification:
At least: 700 cm³/30 s

Caution!

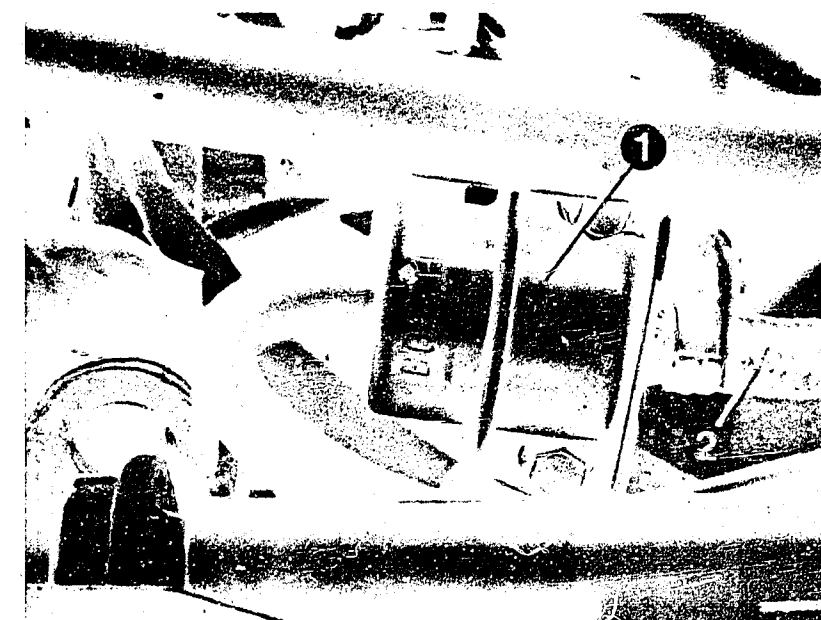
Jumper must be removed again after testing is completed.

Remedy if test specification not reached:

- Fuel filter clogged - replace.
- Voltage across terminals of electric fuel pump with engine running: min. 12 V. If not, clean contacts, possibly eliminate poor ground connection, replace leads.
- Fuel pressure regulator defective - replace (with parts set 1 287 010 704).
- If delivery too low, replace electric fuel pump.

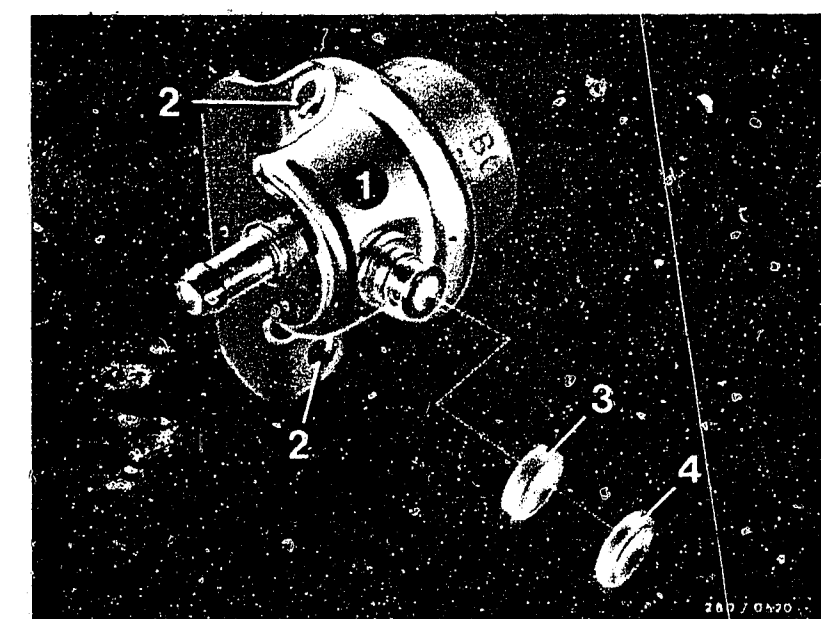
Yes

Continued on G3/G4



1 = Pressure regulator
2 = Return hose

1 = Pressure regulator
2 = Mounting holes
3 = Flat ring } Parts set
4 = O-ring } 1 287 010 704



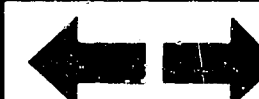
G1

Engine missing.
Peugeot 505 GTI

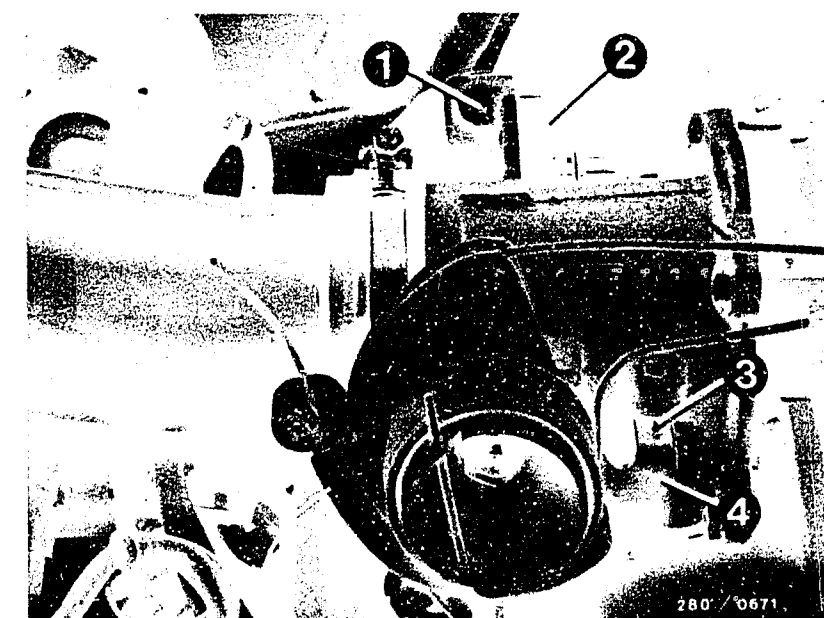
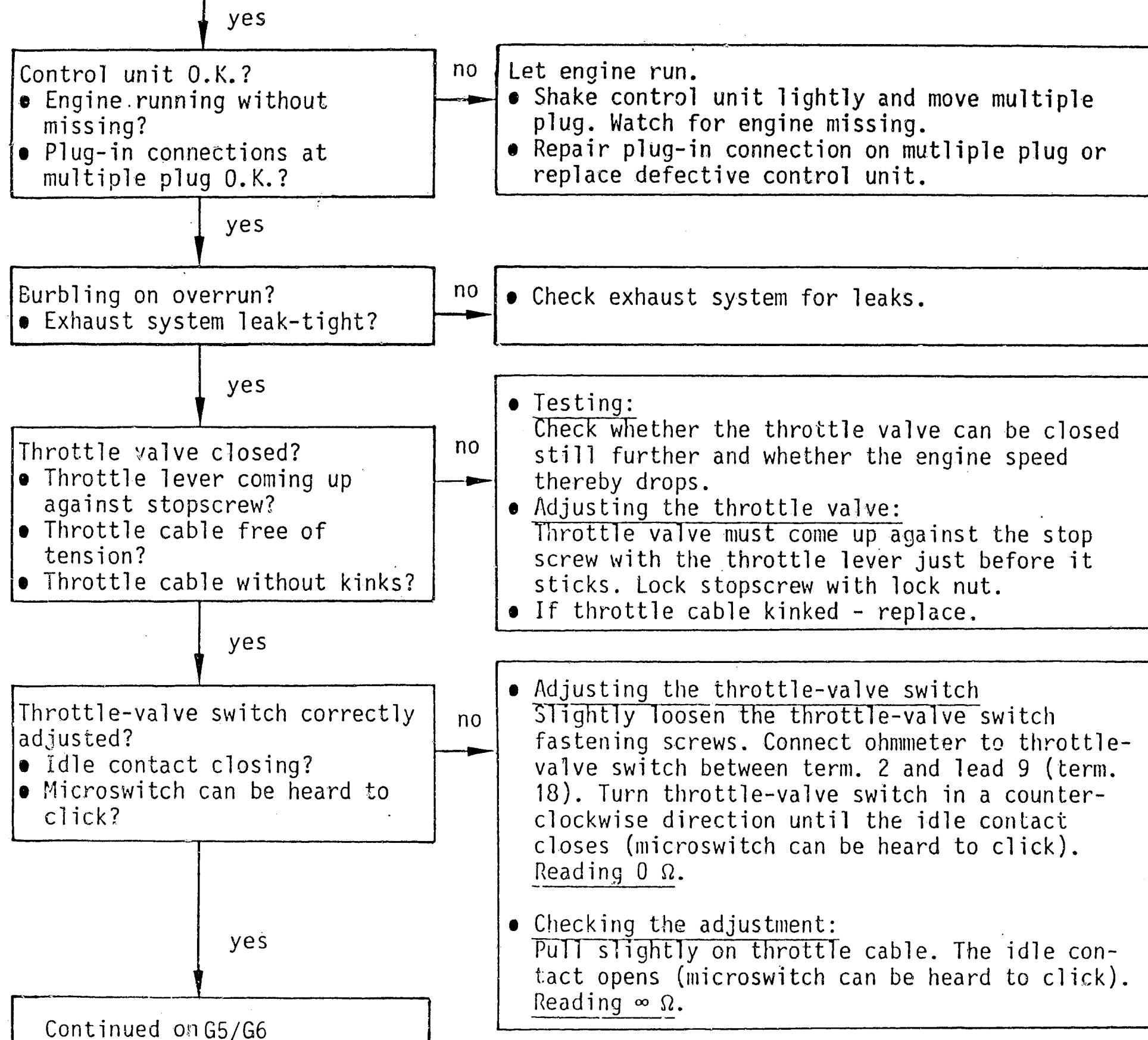


G2

Engine missing
Peugeot 505 GTI



Engine missing under all operating operations (continued)



- 1 = Fastening screws
- 2 = Throttle-valve switch
- 3 = Throttle-valve stop screw
- 4 = Throttle lever

G3

Engine missing
Peugeot 505 GTI



G4

Engine missing
Peugeot 505 GTI



Engine missing under all operating conditions (continued)

yes

Burbling on overrun?
Overrun cutoff O.K.?

- Operation of control unit O.K.?
- Reinstatement speed O.K.?

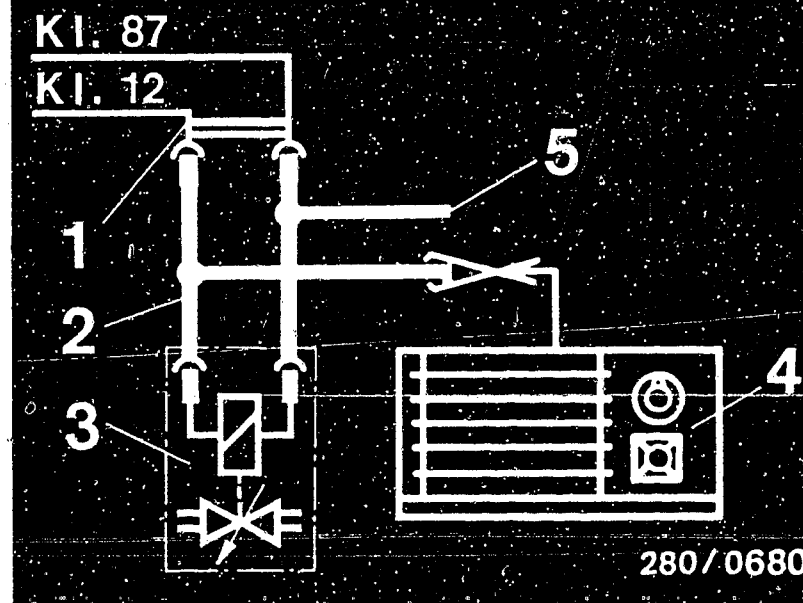
cold: 1500 min^{-1}
warm: 1000 min^{-1}

no

- Testing the overrun cutoff
Connect test lead as follows: The two-pole connectors of the test lead are connected between an injection valve and its connecting lead. Of the other two connection clamps of the test lead, only one clamp must be connected to the special input of the motortester. When the correct clamp is connected, the graph shown opposite is visible on the oscilloscope. Observe oscilloscope.
- Slowly raise engine speed to 3000 min^{-1} . Injection pulses must be visible on the oscilloscope. Foot off accelerator (idle position). No more injection pulses.
- Engine clearly below ambient temperature ($+15^{\circ}\text{C} \dots +30^{\circ}\text{C}$):
As of approx. 1500 min^{-1} injection pulses must be visible again.
- Engine at normal operating temperature (approx. $+80^{\circ}\text{C}$):
As of approx. 1000 min^{-1} injection pulses must be visible again.
If incorrect: replace control unit.

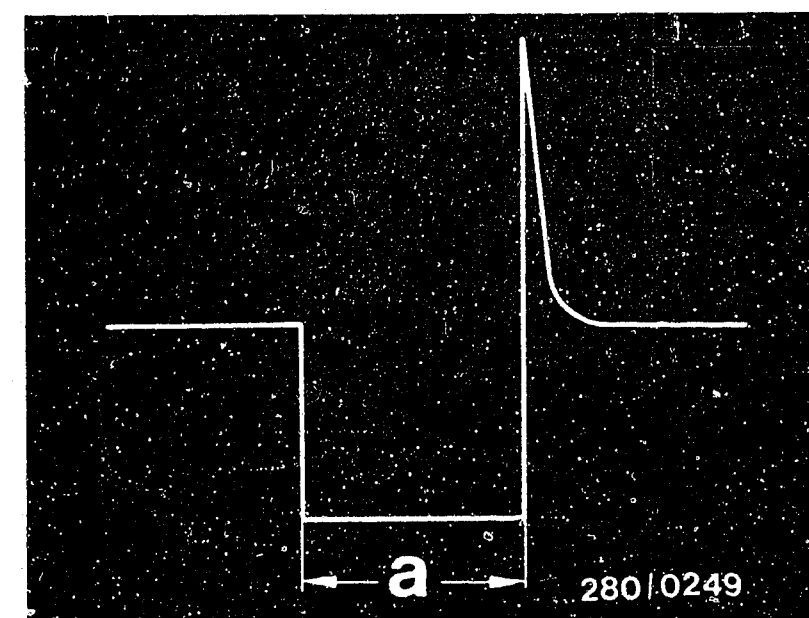
yes

Continued on G7/G8



- 1 = Connector of valve lead
- 2 = Test lead 1 684 463 093
- 3 = Injection valve
- 4 = Motortester
- 5 = Free connection (do not ground!)

Injection pulses of a switched output stage (measured at the injection valve)
a = Pulse length (dependent on engine load)



G5

Engine missing
Peugeot 505 GTI



G6

Engine missing
Peugeot 505 GTI



Engine missing under all operating conditions (continued)

Yes

Idle speed and CO correctly adjusted?

No

Yes

Idle speed not adjustable.

Yes

Continued on G9/G10

- Idle speed and CO adjustment

Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal operating temperature and at idle speed.

- Idle speed

Manually-shifted transmission:

$700 \dots 800 \text{ min}^{-1}$

Automatic:

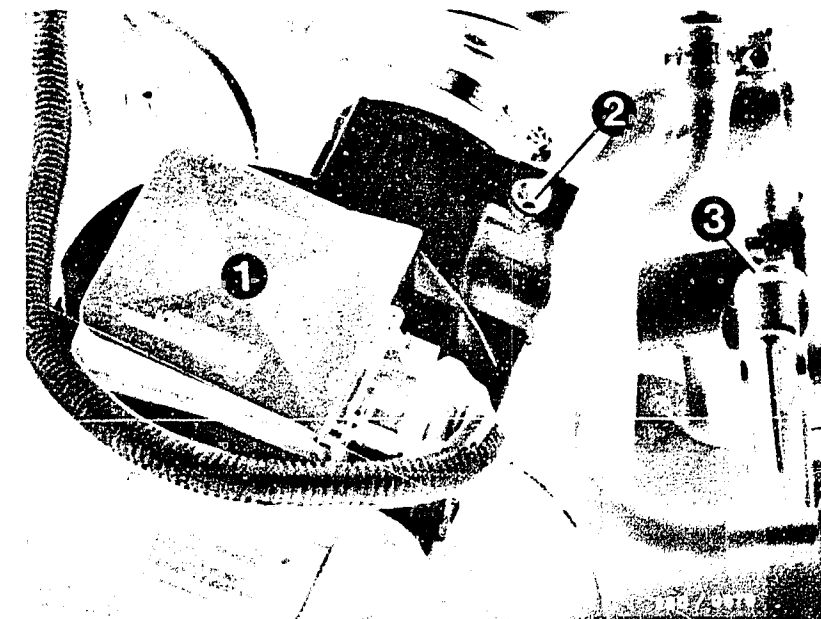
$850 \dots 950 \text{ min}^{-1}$

- CO concentration:

$0.5 \dots 1.5\% \text{ by vol.}$

For all vehicles:

If CO concentration too high, turn bypass screw (CO adjusting screw) in air-flow sensor half a turn in a counterclockwise direction (hexagon-socket-head cap screw AF 5). Test idle speed and CO concentration again. If necessary, make corrections in several steps. After adjusting, use new (red) plugs (1 280 508 012).



1 = Air-flow sensor

2 = CO adjusting screw

3 = Idle-speed adjusting screw

G7

Engine missing

Peugeot 505 GTI



G8

Engine missing

Peugeot 505 GTI



Engine missing under all operating conditions (continued)

yes

Injection valves checked for proper operation?

- Injection pulses without interference or missing?
- Lines correctly routed?
- No loose contacts in plug-in connections?

no

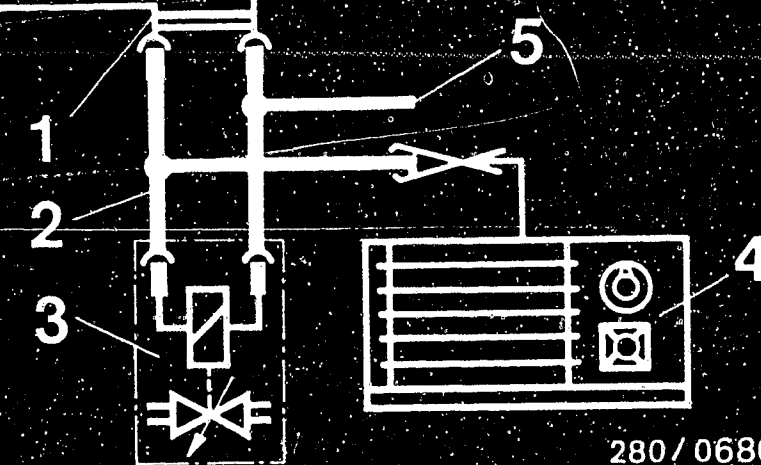
- Connect the test lead as follows:
The two-pole plug connectors of the test leads are connected between an injection valve and its connecting lead. Of the other two terminals of the test lead, only one must be connected to the special input of the motortester.
- Caution:
Free terminal must not come into contact with vehicle body!
- When the correct terminal is connected, the diagram shown opposite is visible. Using the test lead, the injection pulses at the injection valves can be tested with an ignition oscilloscope with the engine running. If the diagram opposite is not obtained or if there are deviations (interference, missing etc.), the other injection valves should also be tested.
- In case of interference: check routing of leads.
- In case of missing, eliminate loose contacts in leads or in plug-in connections.

yes

Continued on G11/G12

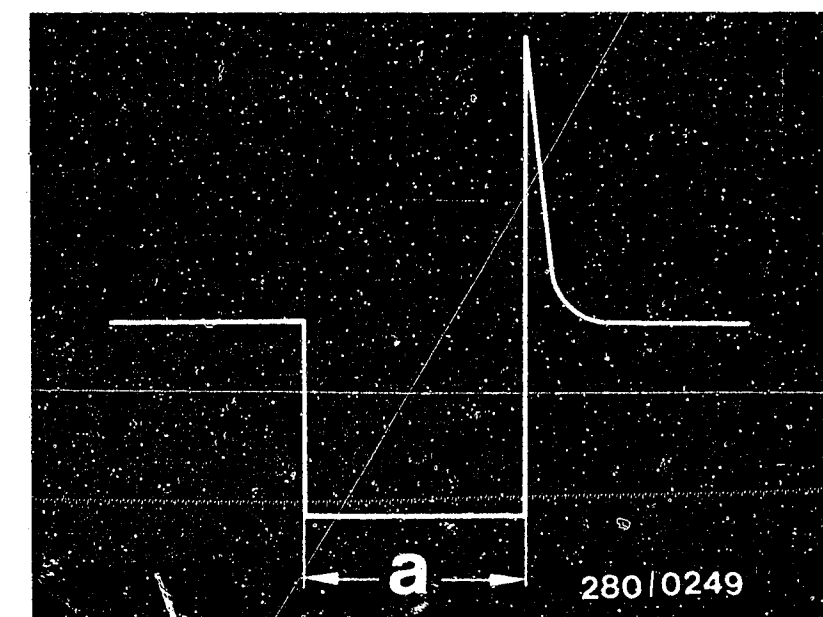
KI. 87

KI. 12



- 1 = Connector of valve lead
- 2 = Test lead 1 684 463 093
- 3 = Injection valve
- 4 = Motortester
- 5 = Free connection
(do not ground!)

Injection pulses of a switched output stage (measured at the injection valve)
a = Pulse length (dependent on engine load)



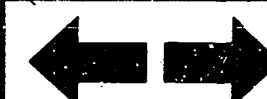
G9

Engine missing
Peugeot 505 GTI

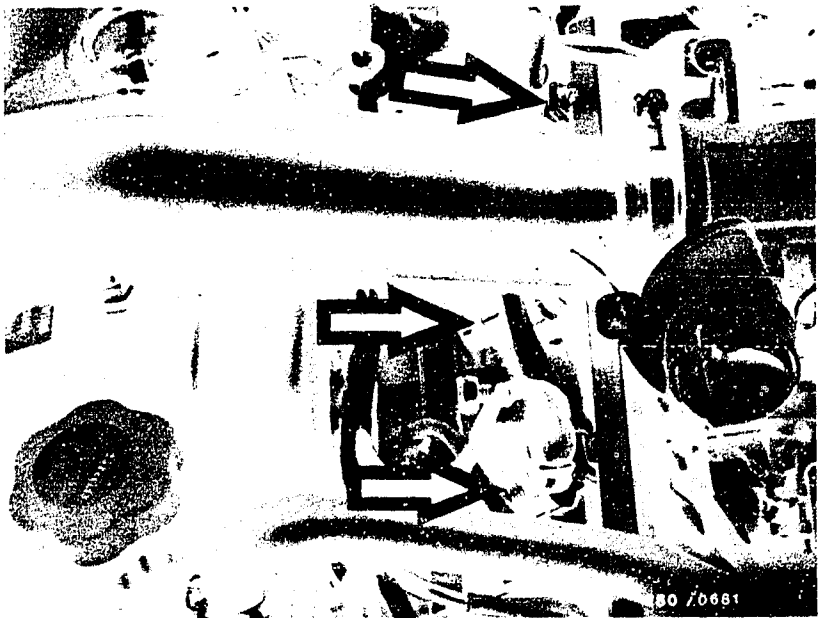
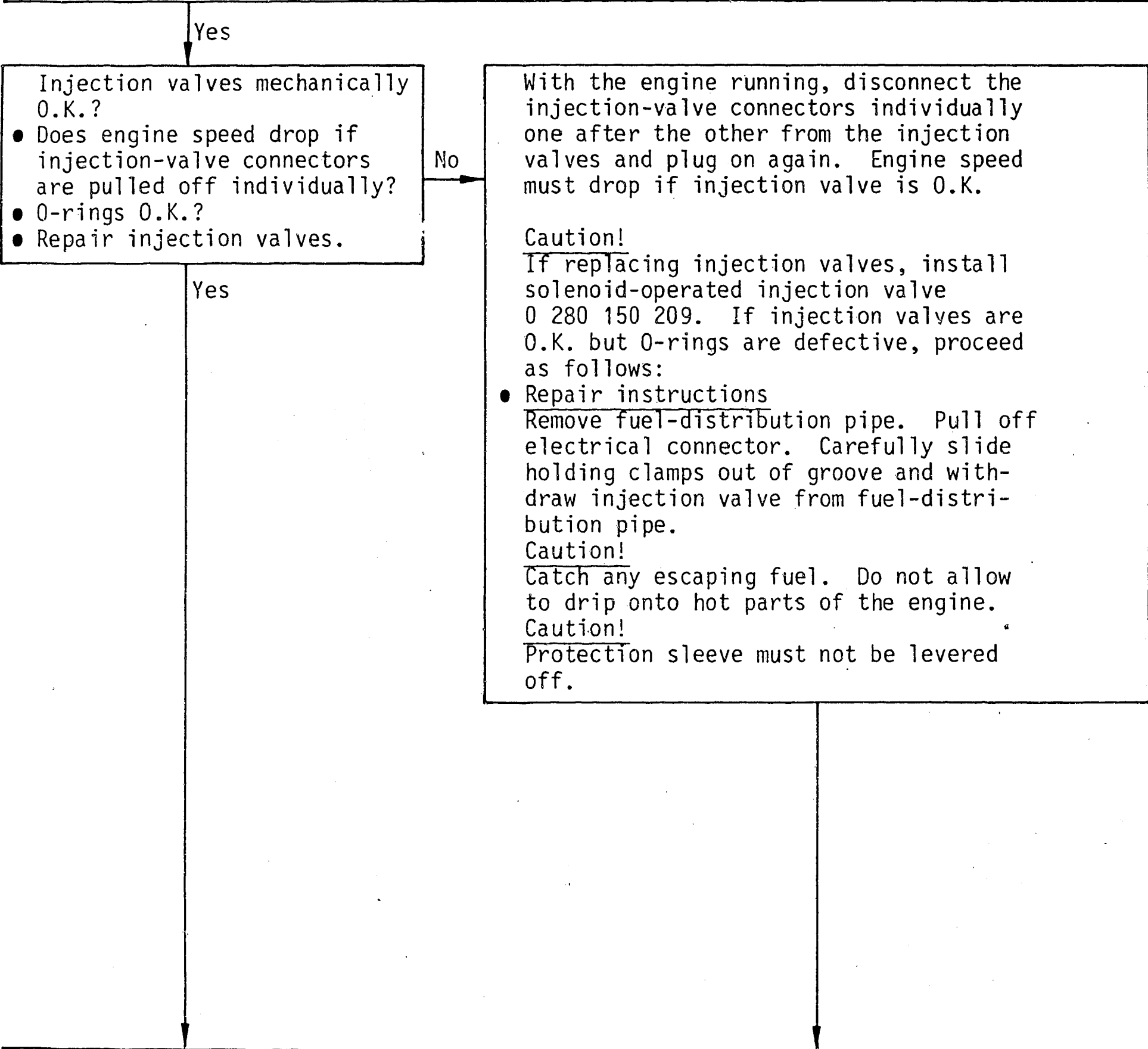


G10

Engine missing
Peugeot 505 GTI

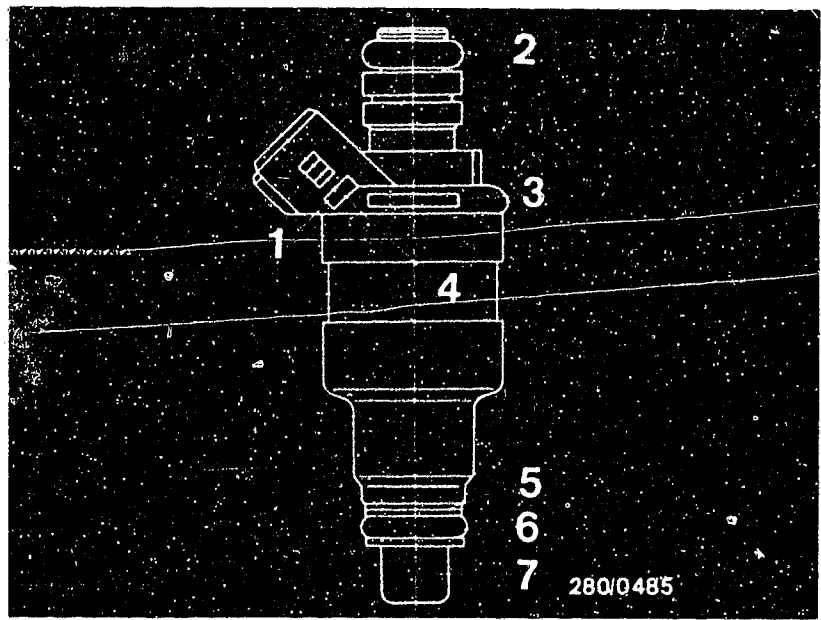


Engine missing under all operating conditions (continued)



Arrows = Injection valves

- 1 = FD mark
- 2 = Upper O-ring
- 3 = Part number
- 4 = Injection valve
- 5 = Supporting plate
- 6 = Lower O-ring
- 7 = Protection sleeve



Engine missing under all operating conditions (continued)

Yes

Repair injection valves.
Protection sleeve or O-ring O.K.?

no

Cut off lower O-ring (intake tube).
Caution! Do not damage protection sleeve.
Fit new O-ring over protection sleeve and its bead. Do not damage any parts.
Use parts set 1 287 010 704. Do not damage the valve needle when working on injection valves. If the upper O-ring (fuel-distribution pipe connection) is swollen or damaged, it must also be replaced.

Yes

Trouble-shooting program for customer complaint

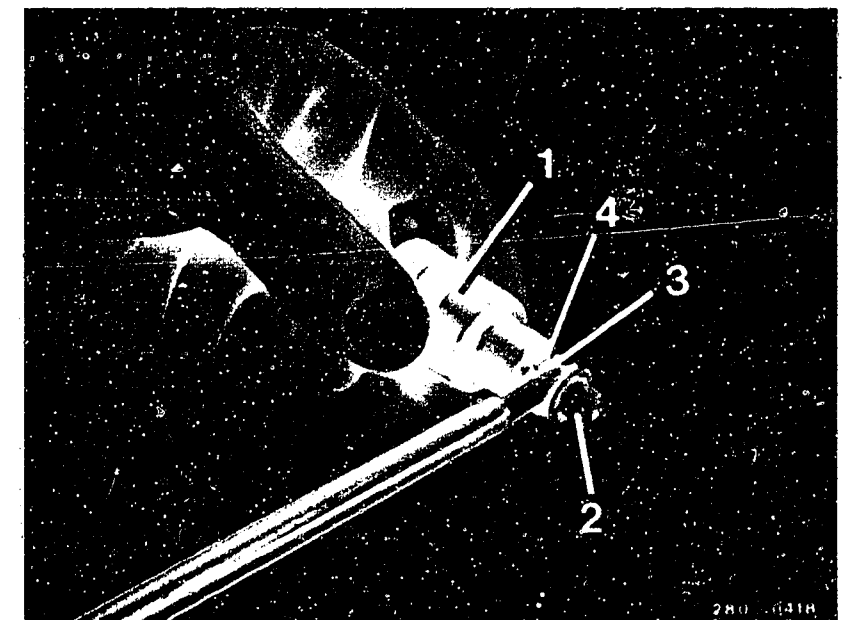
"Engine missing under all operating conditions"

Fault remedied?

no

Further possibilities:

- Customer complaint incorrectly diagnosed (see Coordinates B 3...B 8).
If the fault has not been detected by "direct trouble-shooting", see "detailed trouble-shooting". (Coordinates B 3/B 4).
- Engine not mechanically O.K. (Compression, valve setting, valve timing, worn camshaft).



- 1 = Injection valve
- 2 = Protection sleeve
- 3 = Lower O-ring
- 4 = Supporting plate

G 13

Engine missing
Peugeot 505 GTI



G 14

Engine missing
Peugeot 505 GTI



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

FUEL CONSUMPTION TOO HIGH

Yes

Ignition, engine etc.
O.K.?

No

Remedy fault in ignition and engine.

Yes

Electrical test with universal
test adapter already performed?

No

For testing, see Coordinates
B 9 ... C 7.

Yes

Fuel pressure test already
performed?

No

For testing, see Coordinates
C 8 ... C 19.

Yes

Continued on G17/G18

G 15

Fuel consumption too high
Peugeot 505 GTI



G 16

Fuel consumption too high
Peugeot 505 GTI



Fuel consumption too high (continued)

yes

Have all brakes released fully?

no

Adjust handbrake or drum brake so that there is no friction.

yes

Injection valves mechanically O.K.?

- Does engine speed drop if injection-valve connectors are pulled off individually?
- O-rings O.K.?
- Repair injection valves.

no

- With the engine running, disconnect the injection-valve connectors individually one after the other from the injection valves and plug on again. Engine speed must drop if injection valve is O.K.

Caution!

If replacing injection valves, install solenoid-operated injection valve 0 280 150 209. If injection valves are O.K. but O-rings are defective, proceed as follows:

Repair instructions

Remove fuel-distribution pipe. Pull off electrical connector. Carefully slide holding clamps out of groove and withdraw injection valve from fuel-distribution pipe.

Caution!

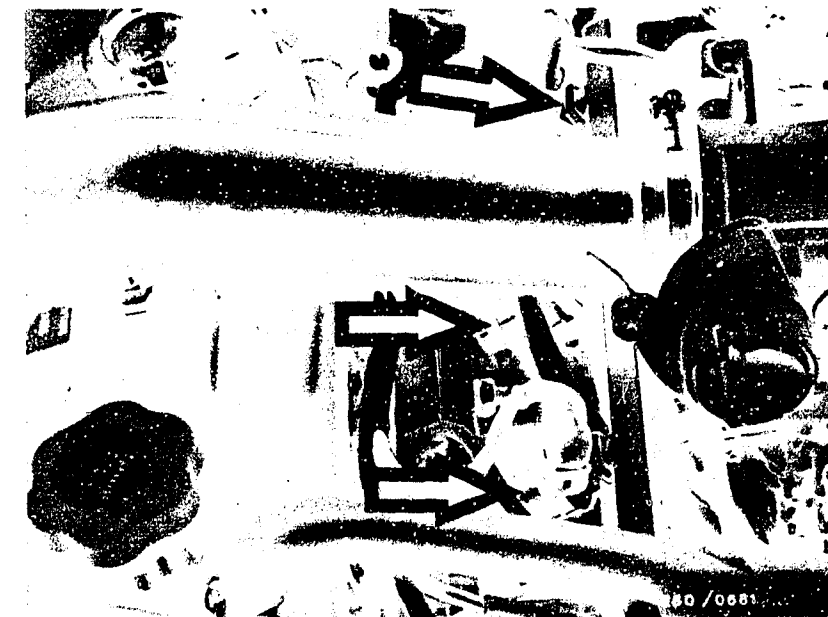
Catch any escaping fuel. Do not allow to drip onto hot parts of the engine.

Caution!

Protection sleeve must not be levered off.

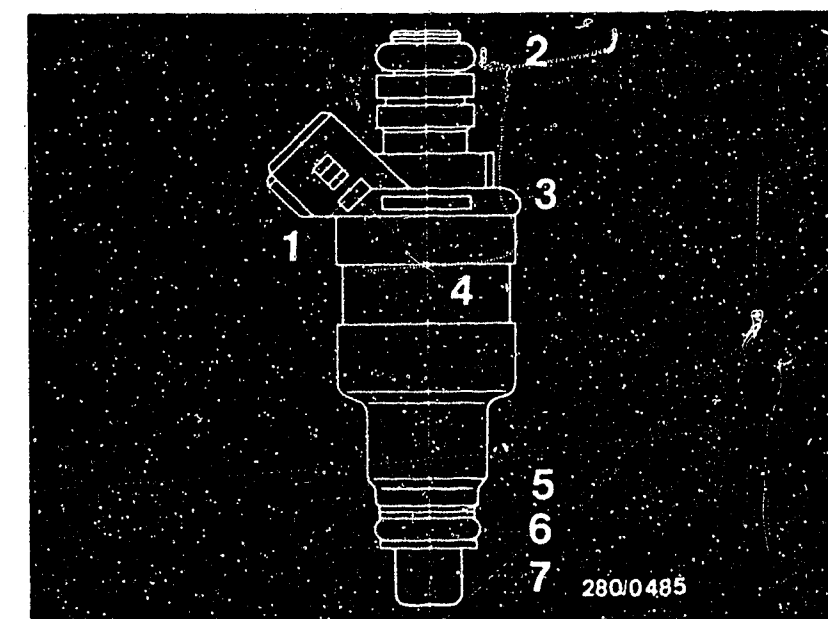
yes

Continued on G19/G20



Arrows = Injection valves

- 1 = FD mark
- 2 = Upper O-ring
- 3 = Part number
- 4 = Injection valve
- 5 = Supporting plate
- 6 = Lower O-ring
- 7 = Protection sleeve



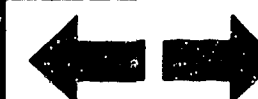
G17

Fuel consumption too high
Peugeot 505 GTI



G18

Fuel consumption too high
Peugeot 505 GTI



Fuel consumption too high (continued)

Yes

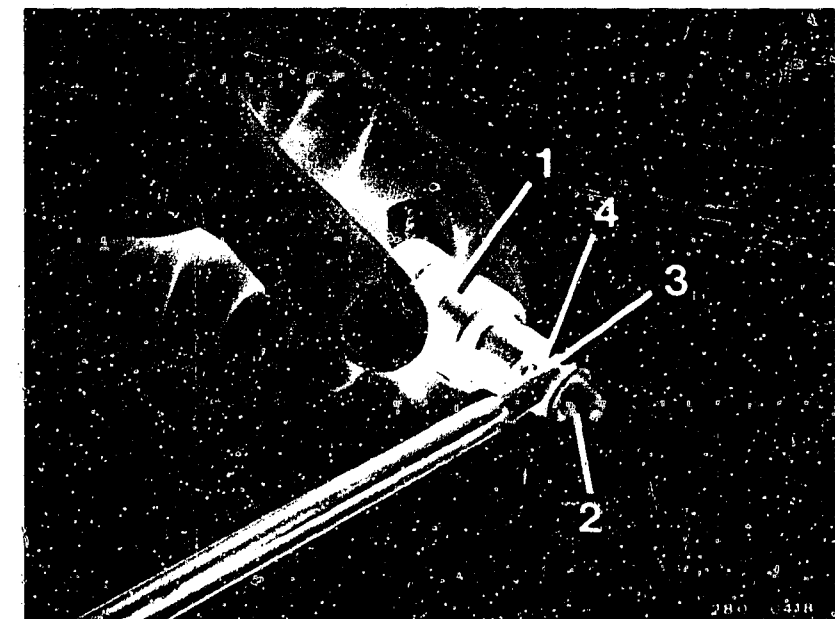
Repair injection valves.
Protection sleeve and O-ring O.K.?

No

Cut off lower O-ring (intake tube).
Caution! Do not damage protection sleeve.
Fit new O-ring over protection sleeve and its bead. Do not damage any parts.
Use parts set 1 287 010 704. Do not damage the valve needle when working on injection valves. If the upper O-ring (fuel-distribution pipe connection) is swollen or damaged, it must also be replaced.

Yes

Continued on G21/G22



- 1 = Injection valve
- 2 = Protection sleeve
- 3 = Lower O-ring
- 4 = Supporting plate



Fuel consumption too high (continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):
60...1000 Ω

No

Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.
- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent.

The air-flow sensor must be replaced.

- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.

Test specification: 160...300 Ω

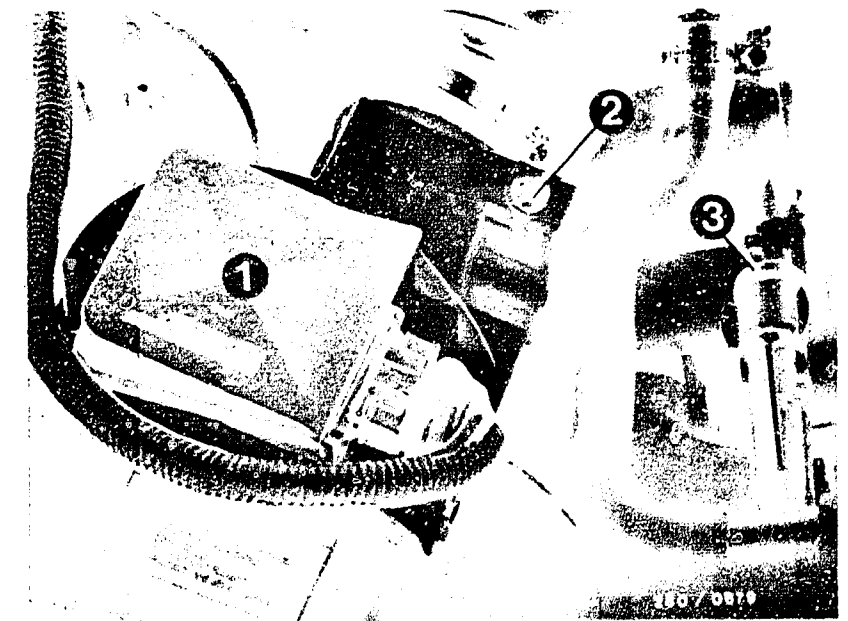
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.

Test specification: 60...1000 Ω

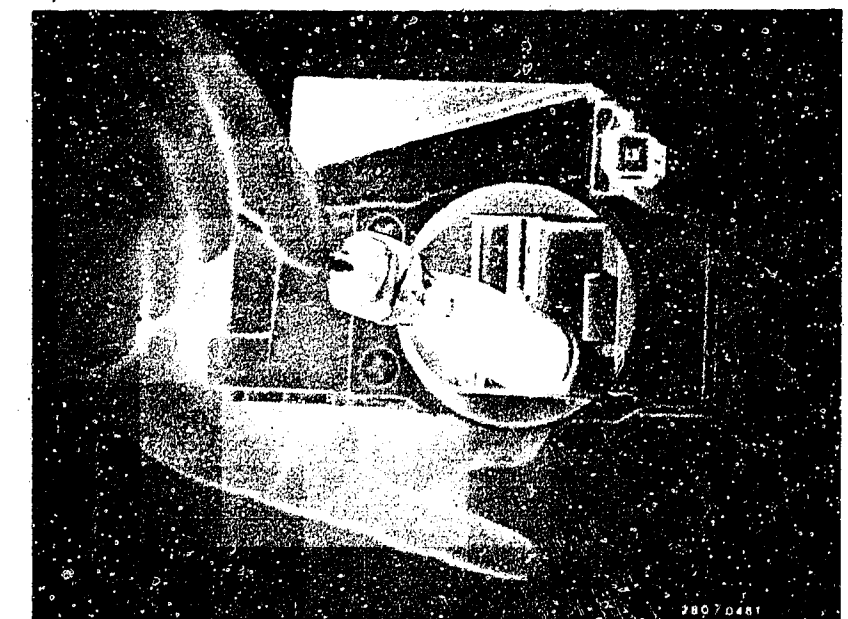
Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

Yes

Continued on G23/G24



- 1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw



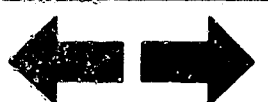
G21

Fuel consumption too high
Peugeot 505 GTI

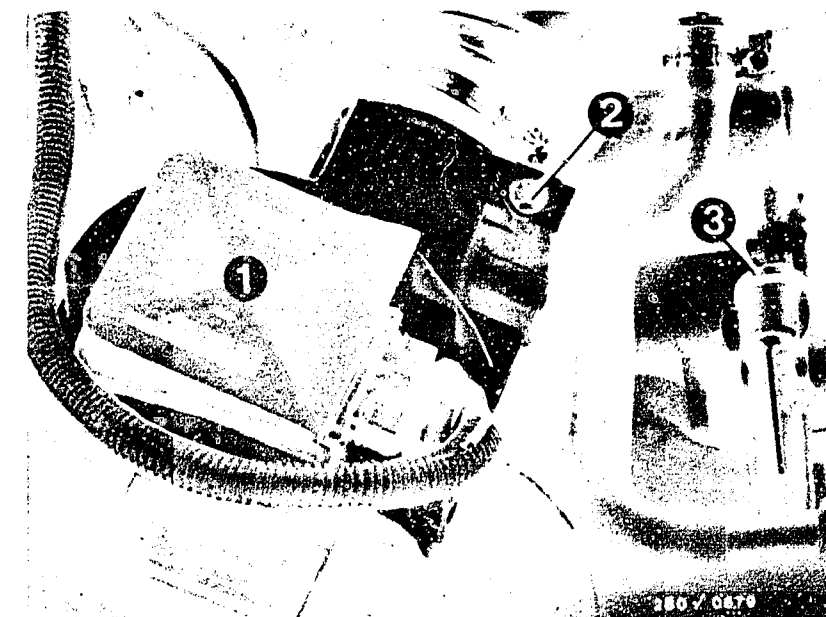
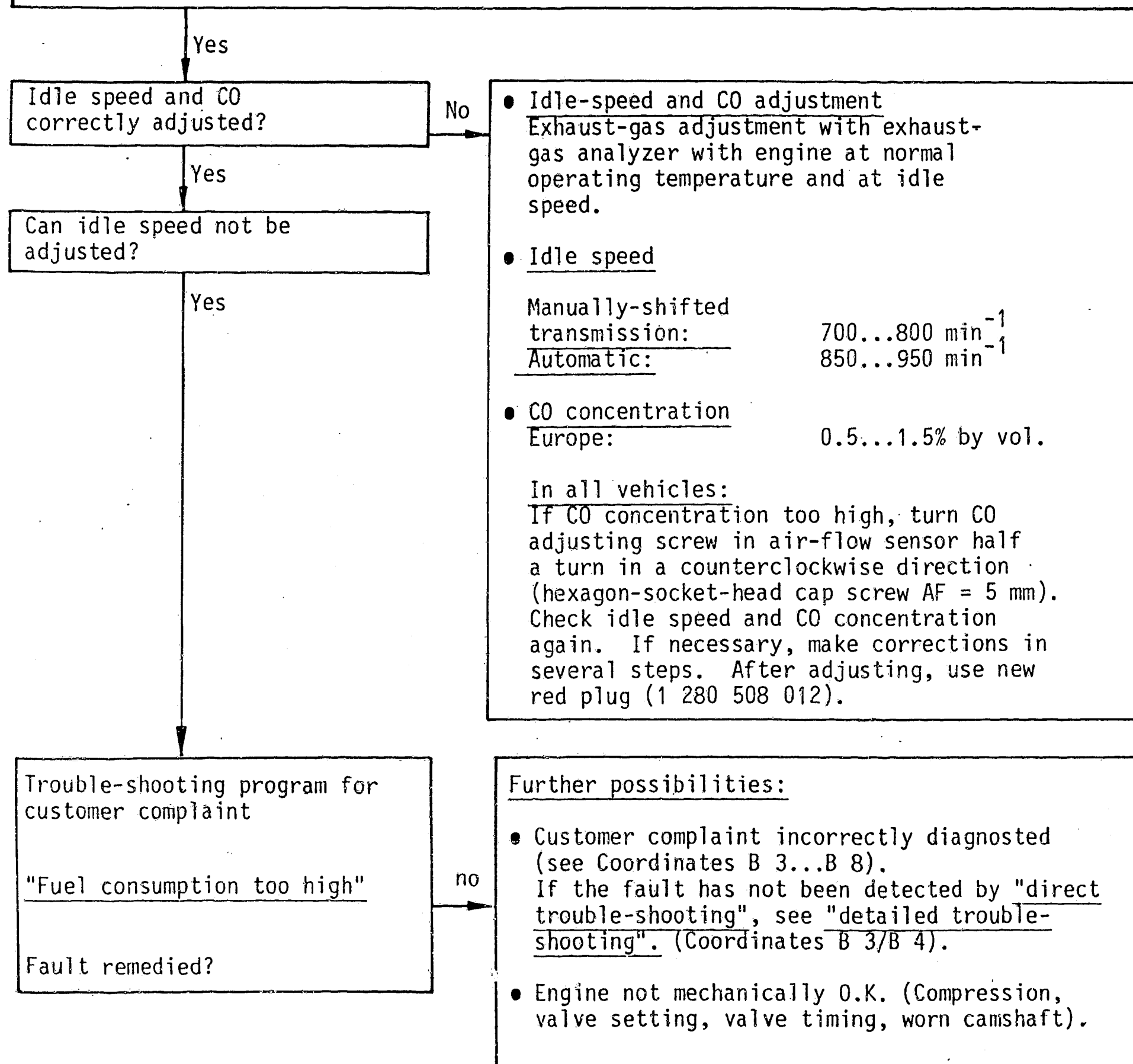


G22

Fuel consumption too high
Peugeot 505 GTI



Fuel consumption too high (continued)



- 1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

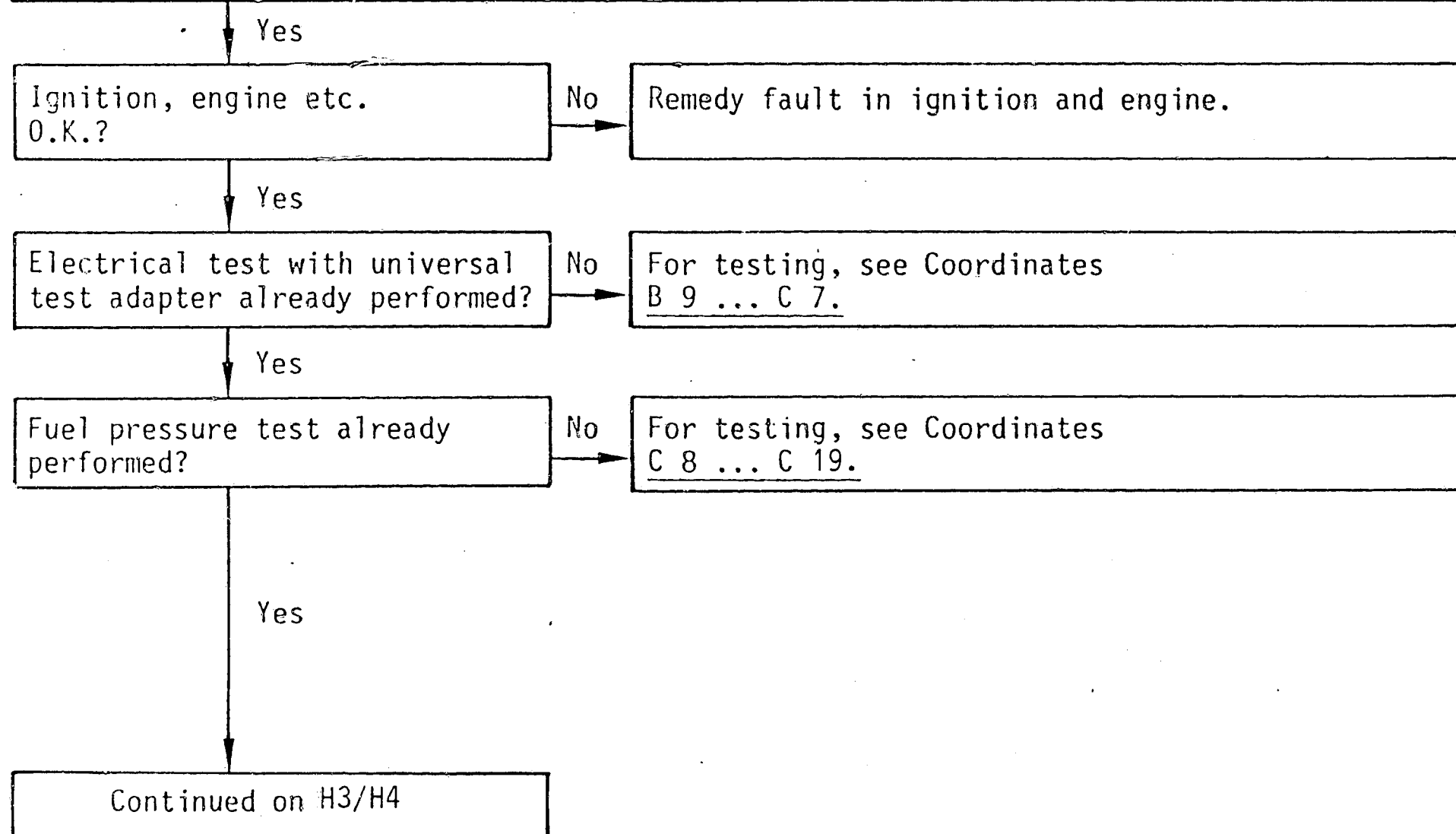
- The left-hand row contains the questions on the tests.
- The middle row contains descriptions of the testing and adjustment operations on the components.
- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

MAXIMUM ENGINE POWER/TOP SPEED NOT REACHED

**H1**

No maximum engine power
Peugeot 505 GTI

**H2**

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

Yes

Does the throttle valve open fully?
• Accelerator, throttle linkage, throttle cable O.K.?

No


- Throttle linkage may stick due to floor mat.
- If throttle cable kinked - replace.

Yes

Continued on H5/H6


H3

No maximum engine power
Peugeot 505 GTI



H4

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

Yes

Throttle-valve switch O.K.?

- Does the length of the injection pulses change at idle when bridging term. 3 and term. 18 (full-load enrichment)?

No

Connect the test lead as follows:

The two-pole plug connectors of the test lead are connected between an injection valve and its connecting lead. Of the other two terminals of the test lead, only one must be connected to the special input of the motortester.

Caution!

Free terminal must not come into contact with vehicle body.

If the correct connection clamp is connected, the oscilloscope pattern shown opposite is visible. With the aid of the test lead it is possible with an ignition oscilloscope to test the injection pulses at the injection valves with the engine running.

Observe the injection pulses at idle. Remove throttle-valve switch plug and bridge term. 3 and term. 18 (insulated wire jumper).

Caution!

Do not bend any terminals. Injection pulse must become longer.

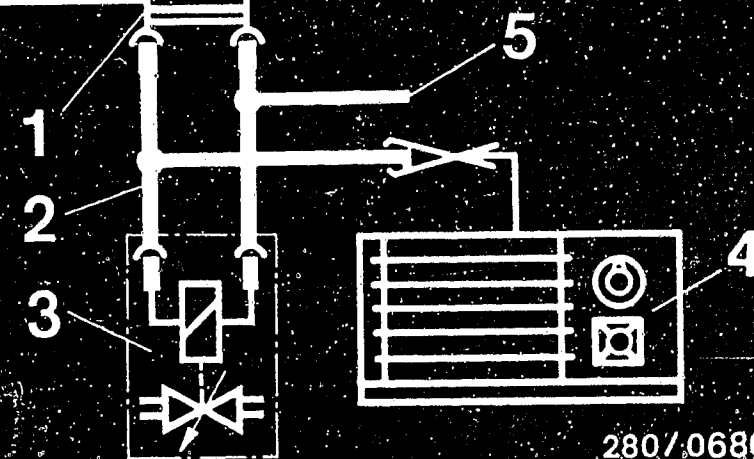
If not: Check for continuity in connecting leads from multiple plug to throttle-valve switch (term. 3 and term. 18). If O.K., replace control unit.

Yes

Continued on H7/H8

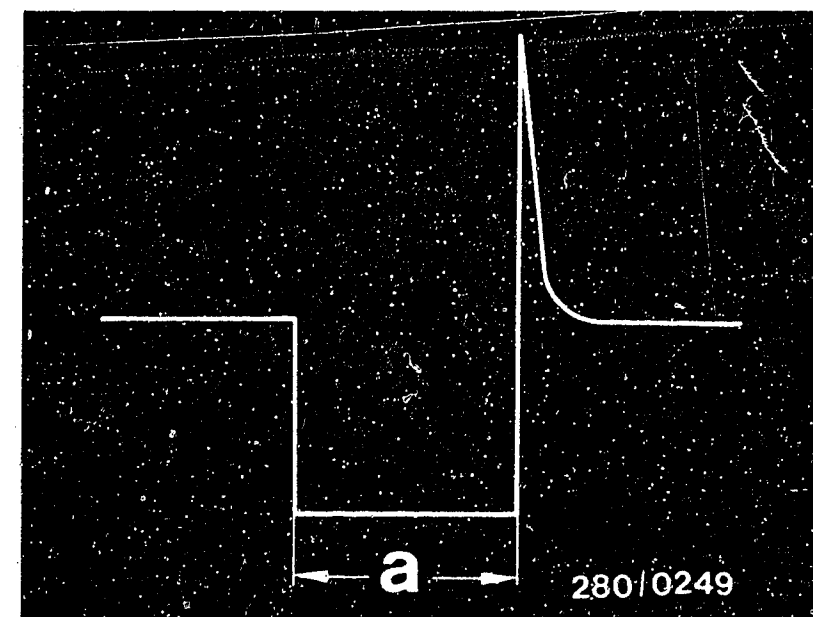
KI. 87

KI. 12



- 1 = Connector of valve lead
- 2 = Test lead 1 684 463 093
- 3 = Injection valve
- 4 = Motortester
- 5 = Free connection (do not ground!)

Injection pulses of a switched output stage (measured at the injection valve)
a = Pulse length (dependent on engine load)



H5

No maximum engine power
Peugeot 505 GTI



H6

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

Yes

Delivery of electric fuel pump
O.K.?

Test specification:
min. 700 cm³/30 s

no

● Measuring the fuel delivery:

For testing, loosen return hose from pressure regulator and connect separate hose line. Lead end of hose into a 5 l vessel with graduated scale.

Disconnect control relay. Connect jumper in connection base between term. 87b and term. 30.

Electric fuel pump must operate.

Test specification:

At least: 700 cm³/30 s

Caution!

Jumper must be removed again after testing is completed.

Remedy if test specification not reached:

- Fuel filter clogged - replace.
- Voltage across terminals of electric fuel pump with engine running: min. 12 V. If not, clean contacts, possibly eliminate poor ground connection, replace leads.
- Fuel pressure regulator defective - replace (with parts set 1 287 010 704).
- If delivery too low, replace electric fuel pump.

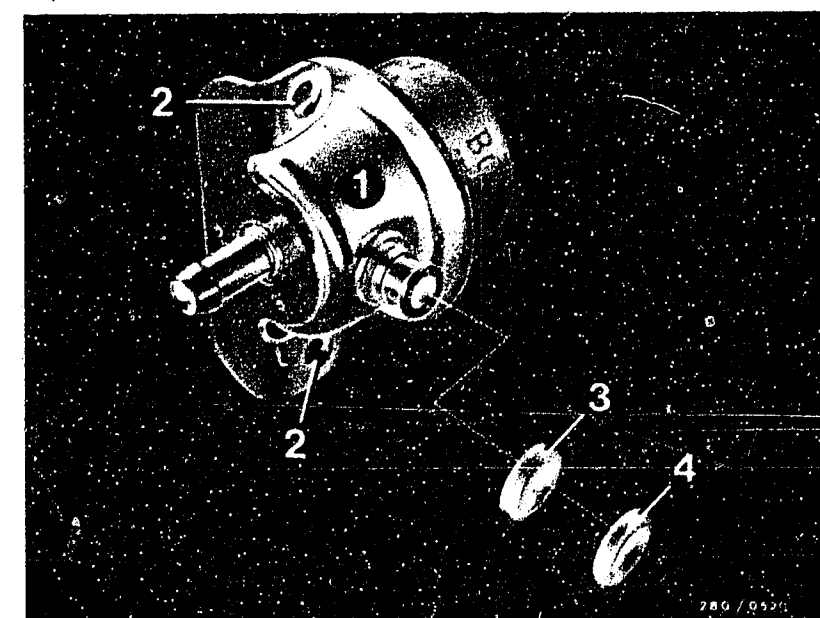
Yes

Continued on H9/H10



1 = Pressure regulator
2 = Return hose

1 = Pressure regulator
2 = Mounting holes
3 = Flat ring } Parts set
4 = O-ring } 1 287 010 704



H7

No maximum engine power
Peugeot 505 GTI



H8

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):
60...1000 Ω

No

Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.

- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent.

The air-flow sensor must be replaced.

- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.

Test specification: 160...300 Ω

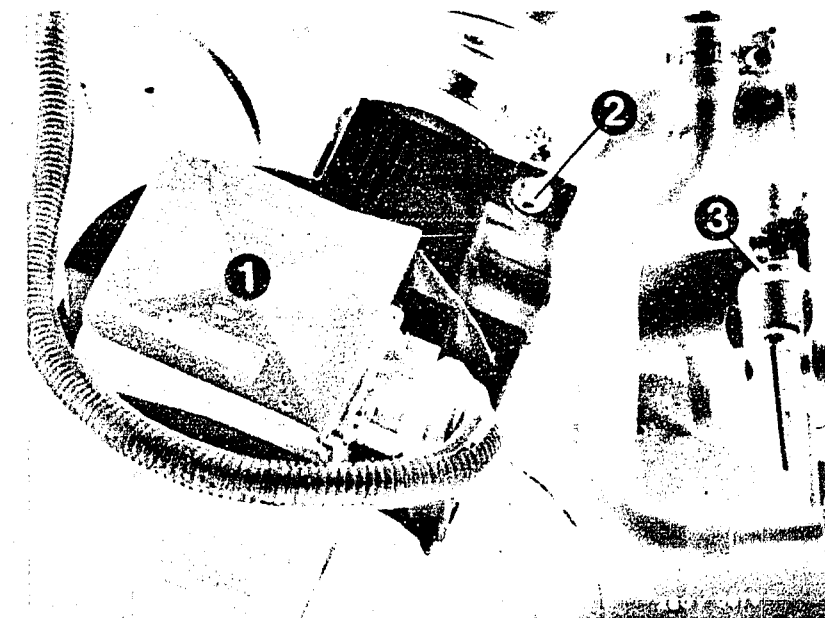
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.

Test specification: 60...1000 Ω

Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

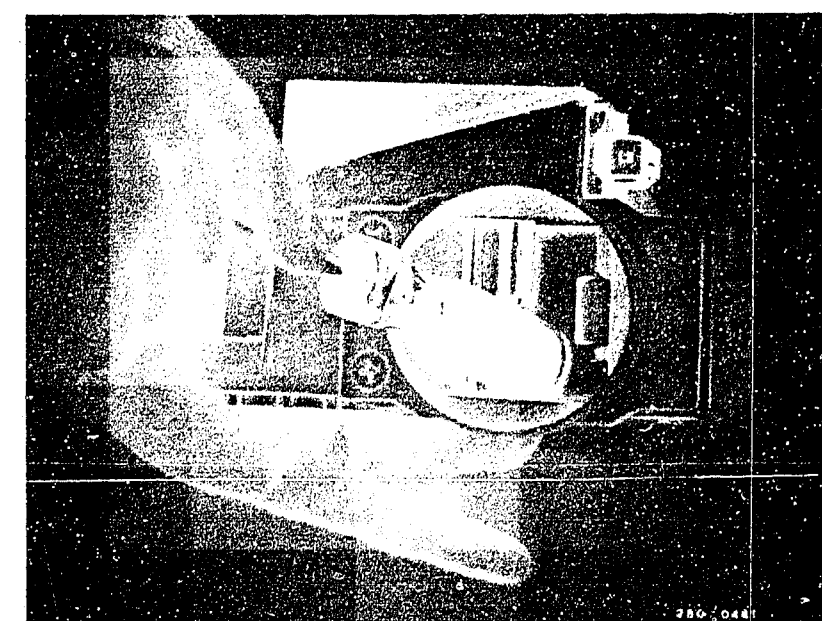
Yes

Continued on H11/H12



- 1 = Air-flow sensor
- 2 = CO adjusting screw
- 3 = Idle-speed adjusting screw

Opening the air-flow sensor flap



H9

No maximum engine power
Peugeot 505 GTI



H10

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

yes

Are all hose lines correctly attached, not kinked or damaged? Visual examination.

- Air-intake system checked for leaks with 0.3 bar gauge pressure?

no

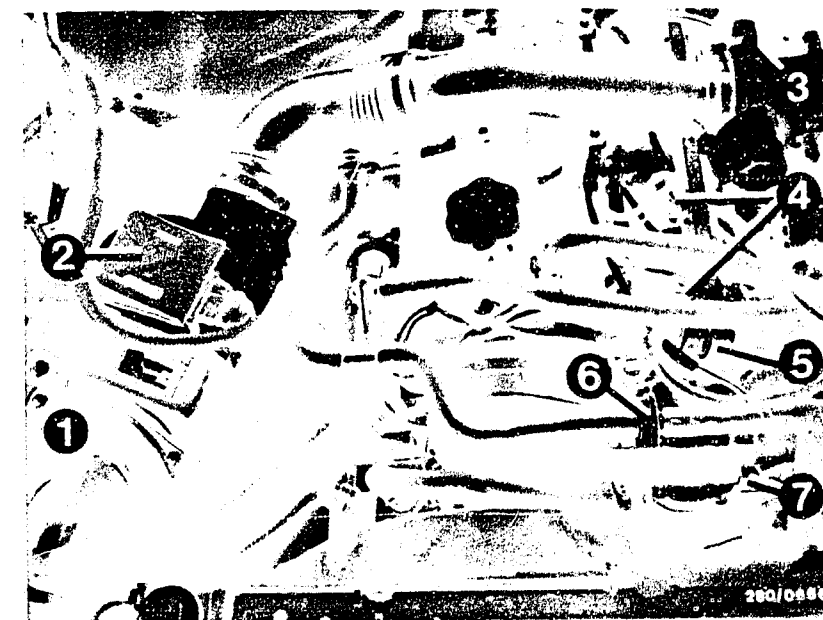
- Check whether hoses of air-intake system and of fuel line system are correctly attached, not kinked or damaged. If necessary, replace hoses. Eliminate leaks by means of new seals or by re-tightening the connecting screws.

• Leak test:

Seal off exhaust tail pipe.
Unscrew air-flow sensor from air-filter housing and seal off air-flow sensor duct.
Pull off hose after auxiliary air device and, using compressed-air gun, blow air (0,3 bar gauge pressure) into the intake manifold. Seal off connection port on auxiliary-air device. Open throttle valve fully while doing this. Brush or spray all joints with soapy water. Leaks may also occur at the following points on the engine: Oil dipstick incorrectly inserted, defective oil filler neck lid seal etc.
Bubbling or foaming indicates a leak.

yes

Continued on H13/H14



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II (concealed under auxiliary-air device)

H11

No maximum engine power
Peugeot 505 GTI



H12

No maximum engine power
Peugeot 505 GTI



Maximum engine power/top speed not reached (continued)

yes

Trouble-shooting program for
customer complaint

"Maximum engine power/top
speed not reached"

Fault remedied?

no

Further possibilities:

- Customer complaint incorrectly diagnosed
(see Coordinates B 3...B 8).
If the fault has not been detected by "direct
trouble-shooting", see "detailed trouble-
shooting". (Coordinates B 3/B 4).
- Engine not mechanically O.K. (Compression,
valve setting, valve timing, worn camshaft).

H13

No maximum engine power
Peugeot 505 GTI



H14

No maximum engine power
Peugeot 505 GTI



Trouble-shooting program according to customer complaints

How to use the following trouble-shooting program

The program is divided into 3 rows of boxes:

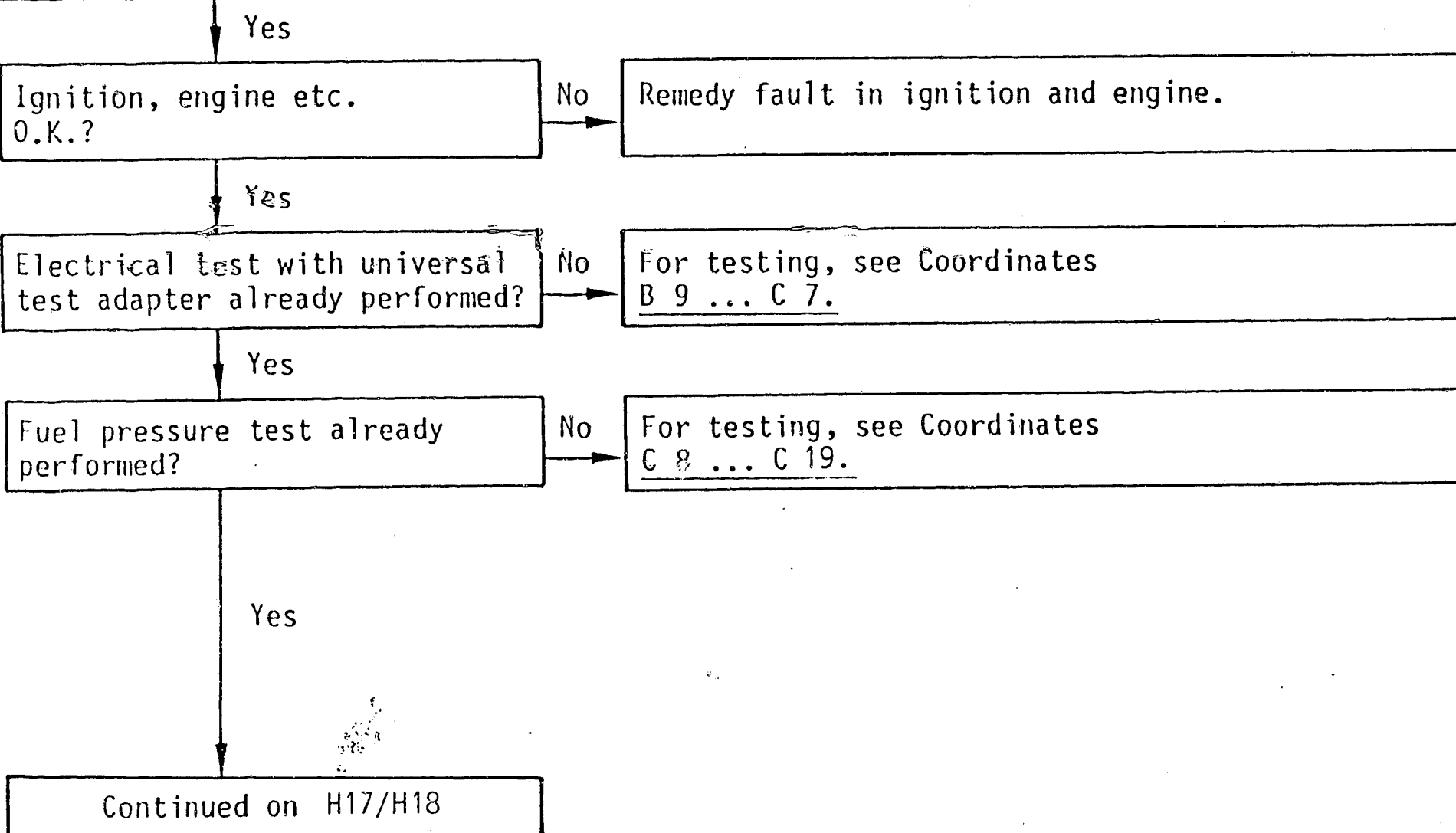
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- The right-hand row contains the illustrations belonging to the text and explains the illustrations.

If the questions can be answered conclusively with "yes" without testing, proceed to the next question below. If, on the other hand, the answer to the question is "no", and you suspect a fault, branch to the middle row of boxes and carry out the tests given there.

When you have finished testing continue trouble-shooting at the point at which you branched off.

START OF TROUBLE-SHOOTING

IDLE SPEED AND CO CONCENTRATION TOO LOW OR TOO HIGH

**H15**

Idle speed and CO concentration
Peugeot 505 GTI

**H16**

Idle speed and CO concentration
Peugeot 505 GTI



Idle speed and CO concentration too low or too high (continued)

Yes

Idle speed and CO
correctly adjusted?

No

Yes

- Idle-speed and CO adjustment
Exhaust-gas adjustment with exhaust-gas analyzer with engine at normal operating temperature and at idle speed.

- Idle speed

Manually-shifted transmission:

700...800 min⁻¹

Automatic:

850...950 min⁻¹

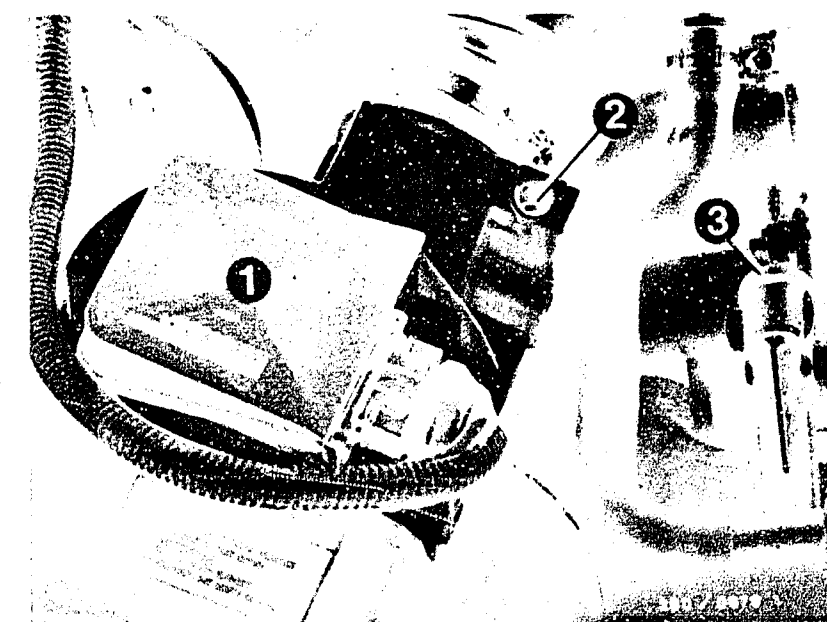
- CO concentration

Europe:

0.5...1.5% by vol.

In all vehicles:

If CO concentration too high, turn CO adjusting screw in air-flow sensor half a turn in a counterclockwise direction (hexagon-socket-head cap screw AF = 5 mm). Check idle speed and CO concentration again. If necessary, make corrections in several steps. After adjusting, use new red plug (1 280 508 012).



- 1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw

Continued on H19/H20

H17

Idle speed and CO concentration
Peugeot 505 GTI



H18

Idle speed and CO concentration
Peugeot 505 GTI



Idle speed and CO concentration too low or too high (continued)

Yes

Auxiliary-air device mechanically O.K.?

Free cross section:

- cold - open?
- warm - closed?
- drop in engine speed if hose is pinched off? (cold engine)

No

Testing:

- Visual examination of auxiliary-air device
Disconnect hoses and look down (possibly using a small mirror). When cold, the cross-section must be partially open; when the engine is warm it must be closed. If not, replace auxiliary-air device.
- Functional test of auxiliary-air device:
With the engine cold, pinch off hose to auxiliary-air device. Engine speed must drop. With engine warm, pinch off hose to auxiliary-air device. Engine speed must not drop noticeably. If not, replace auxiliary-air device (pay attention to direction of flow).

Yes

Electrical operation of auxiliary-air device (power supply, ground lead, resistance) O.K.?

No

Start engine.

- Voltage at plug min. 12 V. If not, test the following leads for continuity (set value approx. 0 Ω):
 - From term. 34M to central ground.
 - From term. 48 to control-unit plug term. 9.
- Resistance of auxiliary-air device 30...65 Ω (plug disconnected).
If resistance outside tolerance, replace auxiliary-air device.

Yes

Continued on H21/H22



- 1 = Fuel-distribution pipe
- 2 = Pressure regulator
- 3 = Temperature sensor
- 4 = Auxiliary-air device
- 5 = Coolant distributor

H19

Idle speed and CO concentration
Peugeot 505 GTI



H20

Idle speed and CO concentration
Peugeot 505 GTI



Idle speed and CO concentration too low or too high (continued)

Yes

Air-flow sensor mechanically and electrically O.K.?

- Air-flow sensor flap moves freely?
- Air-flow sensor flap returns to rest position?
- Resistance values within tolerance?

Between term. 8 and term. 9:
160...300 Ω

Between term. 7 and term. 5
(deflect air-flow sensor flap):
60...1000 Ω

No

Testing:

- Unscrew air-flow sensor from air-filter housing. Open air-flow sensor flap by hand. It must be possible to open the air-flow sensor flap with uniform ease from its fully closed position to its fully open position. The sensor flap must close again fully by itself. Sensor flap must not catch when being opened. Watch for signs of abrasion and rubbing. Clean air-flow sensor if the inside is very dirty and rub out with a lint-free cloth. If there are signs of abrasion or rubbing, replace air-flow sensor.
- Air-flow sensor flap must return to rest position. If not, the stopper or the sensor flap is bent. The air-flow sensor must be replaced.
- Connect ohmmeter to term. 8 and term. 9 of air-flow sensor.
Test specification: 160...300 Ω
Connect ohmmeter to term. 7 and term. 5 of air-flow sensor, deflect air-flow sensor flap.
Test specification: 60...1000 Ω

Caution: After testing is completed, the air-flow sensor must be screwed back onto the air-filter housing.

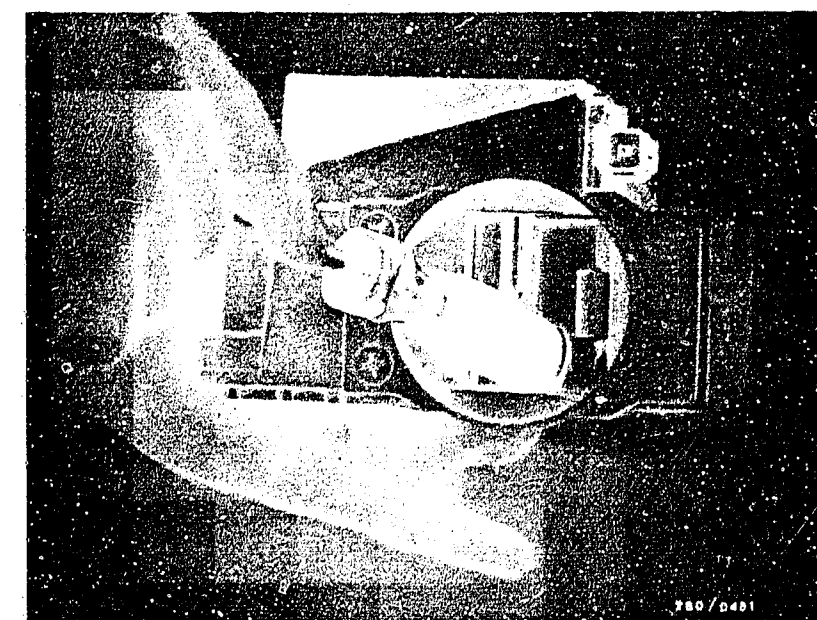
Yes

Continued on H23/H24



- 1 = Air-flow sensor
2 = CO adjusting screw
3 = Idle-speed adjusting screw

Opening the air-flow sensor flap



H21

Idle speed and CO concentration
Peugeot 505 GTI

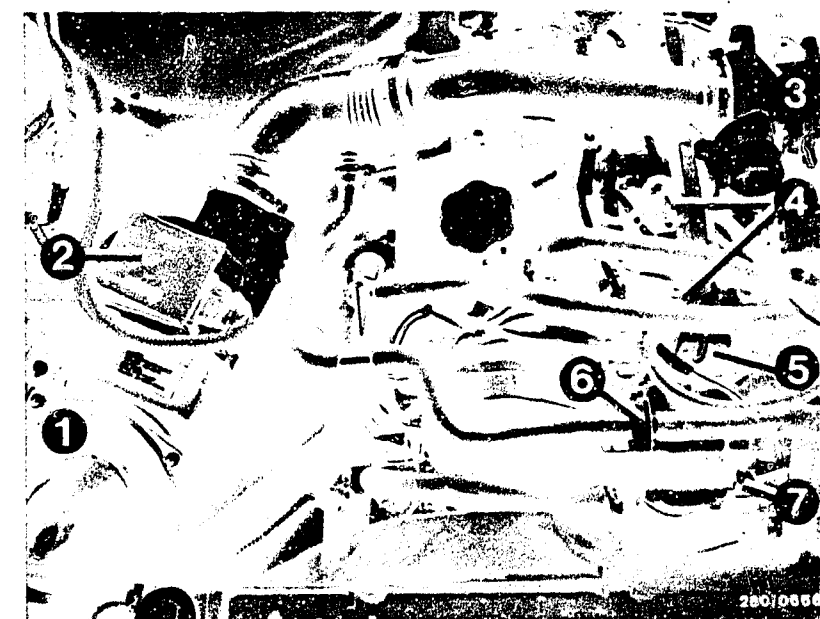
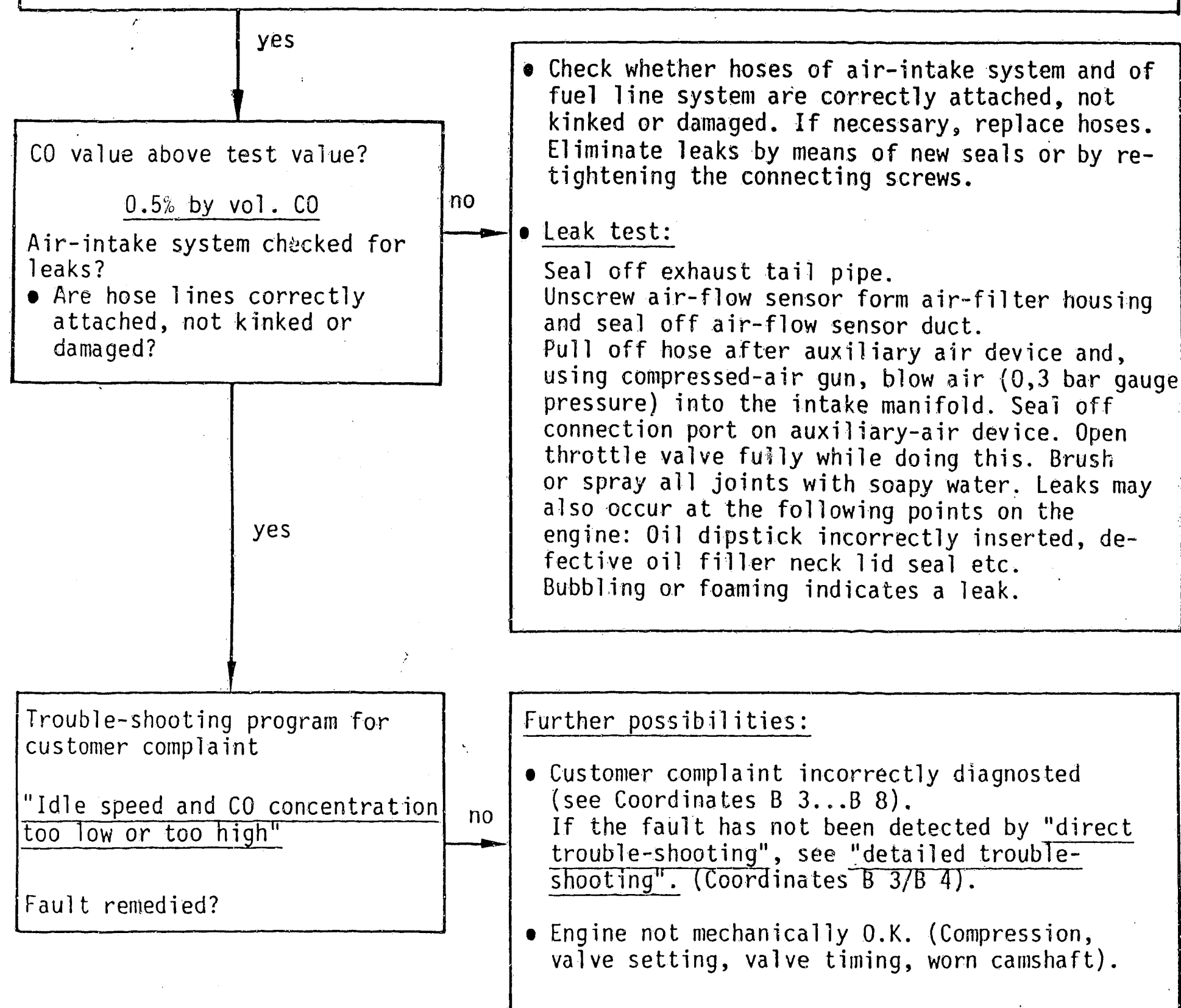


H22

Idle speed and CO concentration
Peugeot 505 GTI



Idle speed and CO concentration too low or too high (continued)



- 1 = Air filter
- 2 = Air-flow sensor
- 3 = Throttle-valve assembly
- 4 = Injection valves
- 5 = Pressure regulator
- 6 = Auxiliary-air device
- 7 = Temperature sensor II
(concealed under auxiliary-air device)

H23

Idle speed and CO concentration
Peugeot 505 GTI



H24

Idle speed and CO concentration
Peugeot 505 GTI



After-sales Service

Technical Bulletin

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DETERMINATION OF THE TEMPERATURE VALUES
GIVEN IN L-JETRONIC MANUALS

VDI-1-280/108 En
5.1982

We have recently been asked with increasing regularity how accurately the engine temperature must be measured when trouble-shooting on the vehicle.

So far in its L-Jetronic manuals KH/VSK has given three or four different temperatures for testing the temperature sensor:

-10 °C, +20 °C, +40 °C and +80 °C,

and two ranges for the thermo-time switch e.g. 35 °C 8 sec.

below +30 °C and above +40 °C.

Since the temperature range need not be subject to such close tolerances, we propose in future the following more appropriate definition:

- Ambient temperature (approx. +15 °C to +30 °C)
- Engine at normal operating temperature (approx. +80 °C).

Please direct questions and comments concerning the contents to our authorized representative in your country.

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Peugeot 505 GTI



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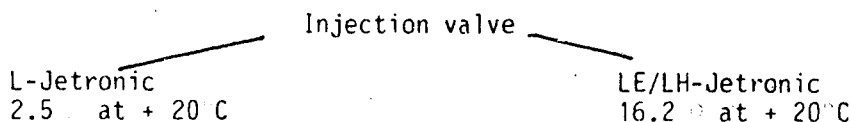
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CODING OF LE/LH-JETRONIC
SOLENOID-OPERATED INJECTION VALVES

VDT-I-280/109 En
5.1982

With the introduction of the LE/LH-Jetronic the internal resistance of the solenoid-operated injection valves has also been changed.



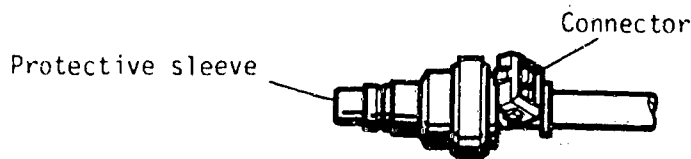
The connector has been left the same for cost reasons and to meet customer wishes.

Caution!

If L-Jetronic injection valves are installed in an LE/LH-Jetronic vehicle, either the control unit or the injection valves will suffer irreparable damage.

Note:

- Install only injection valves with the part number designated for the vehicle.
- As a guide, injection valves with 16.2 internal resistance have a yellow protective sleeve.



- A colour coding (yellow) of the connector (see also VDT-I-280/5) is not generally intended for LE/LH-Jetronic injection valves.

Please direct questions and comments concerning the contents to our authorized representative in your country.

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VLT-I-280/110 En

6.1983

PARTS SET FOR INJECTION VALVES

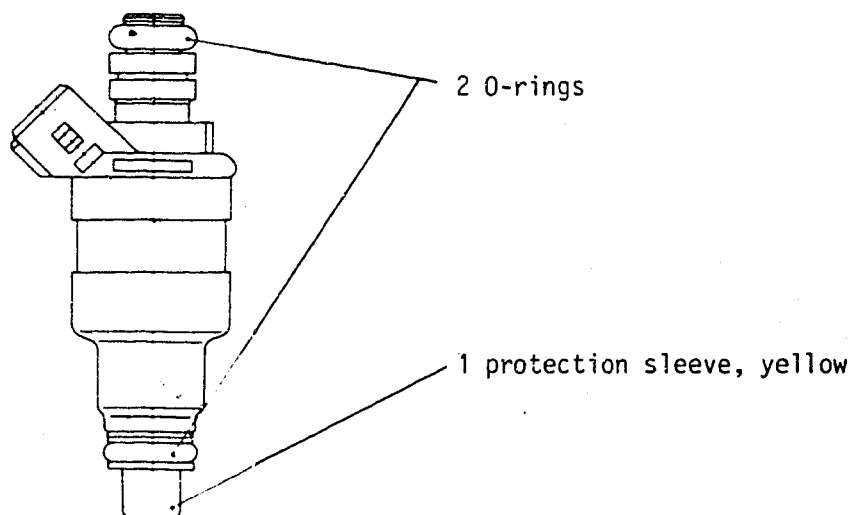
Supersedes 6.1982 edition

0 280 150 2..

AND PRESSURE REGULATORS 0 280 160 2..

A common parts set is available for the L-Jetronic/LE-Jetronic solenoid-operated injection valves and pressure regulators with the new method of connection.

Contents for 1 injection valve:



Contents for 1 pressure regulator:
1 O-ring
1 supporting plate

Since the above-mentioned parts are subjected to extreme temperature stress, they should be exchanged for new parts whenever servicing is carried out.

"Unmetered air" sucked in through injection-valve seals which are not tight, is a frequent case for servicing.

The parts set has the part number 1 287 010 704 and will in future be listed in the service parts microfiche under solenoid-operated injection valves (see EE 00 under 0 280..).

Please direct questions and comments concerning the contents to our authorized representative in your country.

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Technical Bulletins

Peugeot 505 GTI



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PLUG-AND-SOCKET CONNECTORS FOR JETRONIC COMPONENTS

Parts sets

VDT-I-280/111 En

11.1982

(Replaces Ed. 7.82)

Parts sets are available for replacement Jetronic plug-and-socket connectors. The parts sets comprise:

- Connector housing
- Protective cap (rubber sleeve)
- Contact springs

These parts sets are listed on microfiche EE...*.

* See microfiche EE00 under 0 280 ..

- Plug, black, 2-pin, parts set 1 287 013 002 cable connector in conjunction with socket, 2-pin

- Socket, black, 2-pin, parts set 1 287 013 001 for e.g.:

Temperature sensor	0 280 130 0..
Auxiliary-air device	0 280 140 ..
Thermo-time switch	0 280 130 2..
Start valve	0 280 170 ..
Warm-up regulator	0 438 140 ..

- Socket, grey, 2-pin, parts set 1 287 013 003 for:

Solenoid-operated injection valve 0 280 150 ..

- Socket, black, 3-pin, parts set 1 237 000 039 for:

Throttle-valve switch 0 280 120 ..

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- Socket, black, 5-pin, parts set 1 287 013 066 for
Air-flow sensor 0 280 20. ... (LE-Jetronic)
- Socket, black, 6-pin, parts set 1 287 013 004 for
Air-flow sensor 0 280 200 ...
- Socket, black, 7-pin, parts set 1 287 013 005 for
Air-flow sensor 0 280 20. ...
Air-flow sensor 0 280 211 ...

The contact springs (minitimer) can also be supplied separately
under Part No. 1 284 477 026.

The connector housings are only available in the stated colours.

Please direct questions and comments concerning the contents
to our authorized representative in your country.



After-sales Service

Motor Vehicle Service Information

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UNIVERSAL TEST ADAPTER

VDT-I-Gen. 1001 En
1.1982

1. Application

The multiplicity of different fuel-injection and ignition systems at present available on the market, as well as the advances in development which can be expected in the future, demand a new testing concept. In order to maintain the outlay for test equipment, and hence the costs, at a reasonable limit we have developed the universal test adapter.

The following systems can be tested using a test-adapter universal unit together with adapter leads suited to the system in question:

1.1 Systems which are already being fitted as series:

- L-Jetronic (1st generation)
- LE-Jetronic (2nd-generation L-Jetronic)
- Motronic (with the new connector designation, refer to the vehicle-specific instructions!)

1.2 Systems whose introduction is planned:

- Motronic with gearbox control
- KE-Jetronic
- Mono-Jetronic
- Electronic ignition system with ignition map (EZF)

2. Delivery dates and Part Numbers

Available as from 2.1982.

2.1 Universal test adapter (basic unit)

Part Number: 0 684 101 801

Designation: ETT 018.01

2.2 System adapter lead for LE-Jetronic (2nd-generation L-Jetronic)

Part Number 1 684 463 123

First application: For BMW 2.5/2.8 l engines as from 9.1981, and for Opel 2.0 l engines (Manta/Rekord) as from 9.1981.

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Motor Vehicle Service Information

Peugeot 505 GTI



2.3 System adapter lead for Motronic with new connector assignment.

(Refer to the vehicle-related instructions!)

Part Number : 1 684 463 124

First application: Porsche 944 as from series production, BMW as from about 3.1982 (Europe)

2.4 System adapter lead for L-Jetronic (in preparation)

Further system adapter leads will be made available along with the introduction of the new systems as mentioned above.

3. Testing procedure

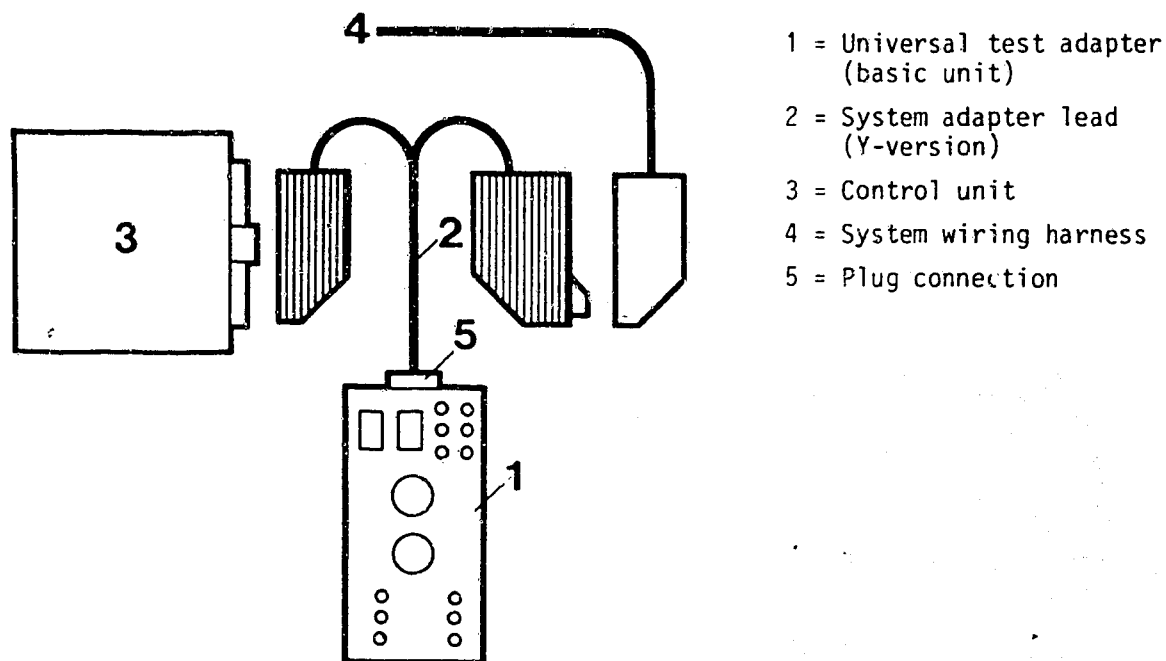
The systems and the components are tested for voltage and resistance values as well as for correct functioning. Evaluation is by means of a multimeter and the Motortester which are connected into the universal test adapter.

Depending upon the complexity of the system, interchangeable adapter lead model 1 or model 2 is provided:

3.1 Adapter lead for peripheral and function testing (Model 1)

The universal test adapter together with the system adapter lead is to be connected to the system wiring harness and to the control unit (e.g. Motronic).

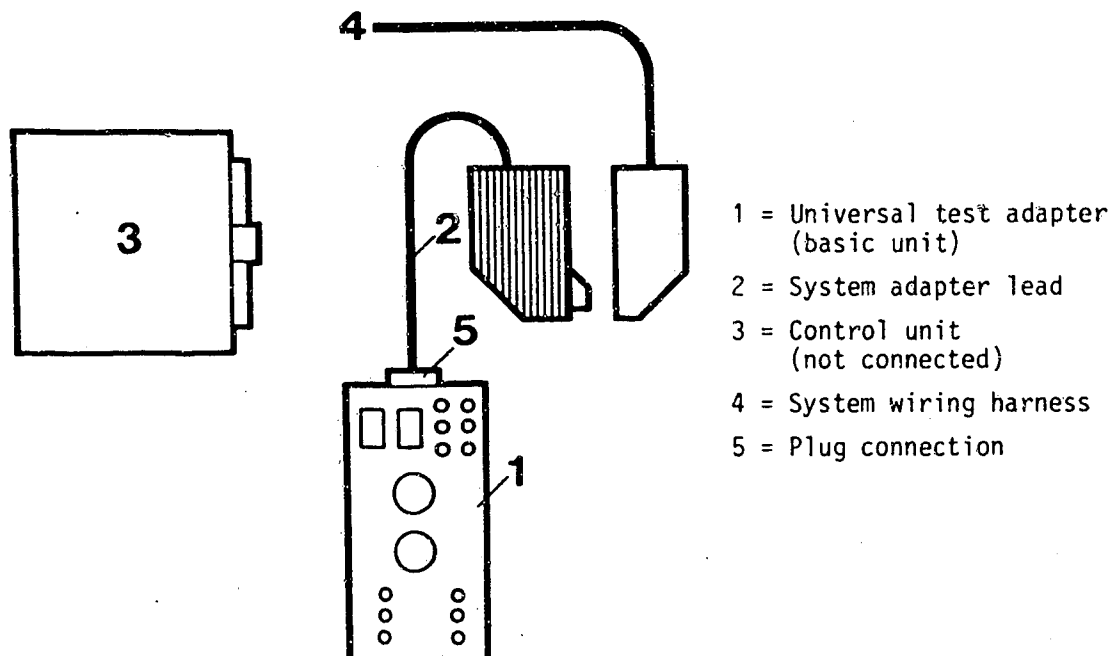
To be tested: Wiring harness with components and control unit.



3.2 Adapter lead for peripheral testing (Model 2)

The universal test adapter with system adapter lead, is only to be connected to the system wiring harness (e.g. LE-Jetronic (2nd-generation L-Jetronic)).

To be tested: Wiring harness with components (without control unit).

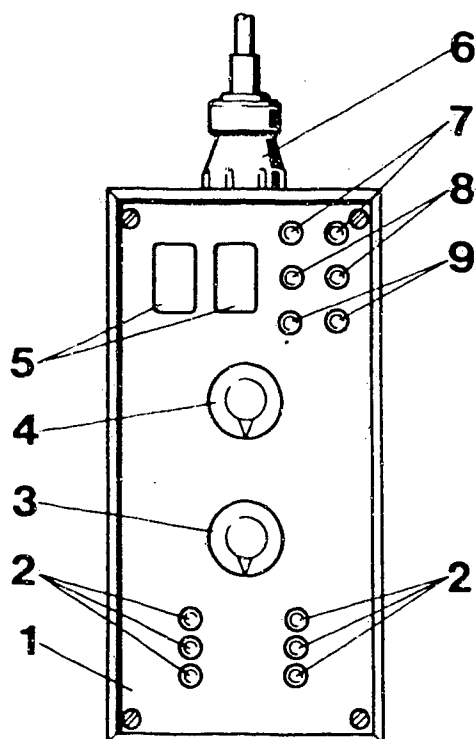


4. Construction of the universal test adapters

The universal test adapter is fitted with 2 program switches footage and resistance measurement. The measured values are displayed on the multimeter connected to the universal test adapter. For reasons of safety, the voltage and resistance sockets are separated. In order to measure signals (e.g. injection pulses, ignition pulses), it is necessary to connect a Motortester to the measuring cavities (special input).

When carrying out functional tests with the control unit connected, selected push-buttons are pressed in a number of test-program steps in order to simulate a variety of different engine operating conditions the influence of which is evaluated using the Motortester.





- 1 = Universal test adapter (basic unit)
- 2 = Keyboard for simulation of various conditions e.g. engine temperature, throttle position etc.
- 3 = Program switch "Ohm" for resistance measurement
- 4 = Program switch "Volt" for voltage measurement
- 5 = Measurement "cavities" (for the special input from the Motortester)
- 6 = 63-pole plug-in connection for connecting the system adapter lead
- 7 = Measurement sockets (voltage measurement with a multimeter or with the Motortester)
- 8 = Measurement sockets (resistance measurement with the multimeter)
- 9 = Sockets for special functions (not yet allocated)

Notes:

1. The Motronic test adapter (0 684 101 800, ETT 018.00) will continue to be used for Motronic-equipped BMW vehicles (with old connector assignment) up to about year of manufacture 3.1982 (refer to vehicle-specific instructions).
2. Details on the operation of the universal test adapter, and the test specs, are to be found in the vehicle-specific after-sales service instructions.

3. Caution! Change of Part Number:

On the SIS-microfiches OPE-00/J22 (Coordinates A14 and A17) the new Part Numbers are as follows:

Universal test adapter: 0 684 101 801

Adapter lead : 1 684 463 123



After-sales Service

Motor Vehicle Service Information

Only for use within the Bosch organization. Not to be communicated to any third party.

EXPORT VEHICLES WITH

EMISSION CONTROL SYSTEMS

VDT-I-Gen. 042 En.

12. 1981

K-Jetronic and L-Jetronic

Export vehicles for countries with stringent exhaust emission regulations are equipped with various emission control systems. To meet the legal requirements, these systems are installed either individually or in combination, depending on the model version.

Emission control system installed predominantly in export vehicles

	Sweden	Australia	Canada	USA	Japan
Exhaust-gas recirculation*	•	•	•	(•)	(•)
Secondary-air induction*	•	•	•	(•)	(•)
Secondary-air injection*	•	•	•	(•)	(•)
Catalytic converter*	-	-	-	•	•
Lambda closed-loop control	-	-	-	•	•

The vehicle-related After-Sales Service Instruction Manuals for the K-Jetronic and L-Jetronic describe the construction, function and operating principle of the emission control systems. The influence of these systems should be borne in mind particularly when adjusting the idle speed and CO concentration.

Export vehicles are sometimes also encountered in countries which do not have particularly stringent exhaust emission legislation. This Service Information publication summarizes the various emission control systems and provides information for the After-Sales Service in countries with exhaust emission legislation which does not require such emission control systems or unleaded fuel.

* Not made by Bosch

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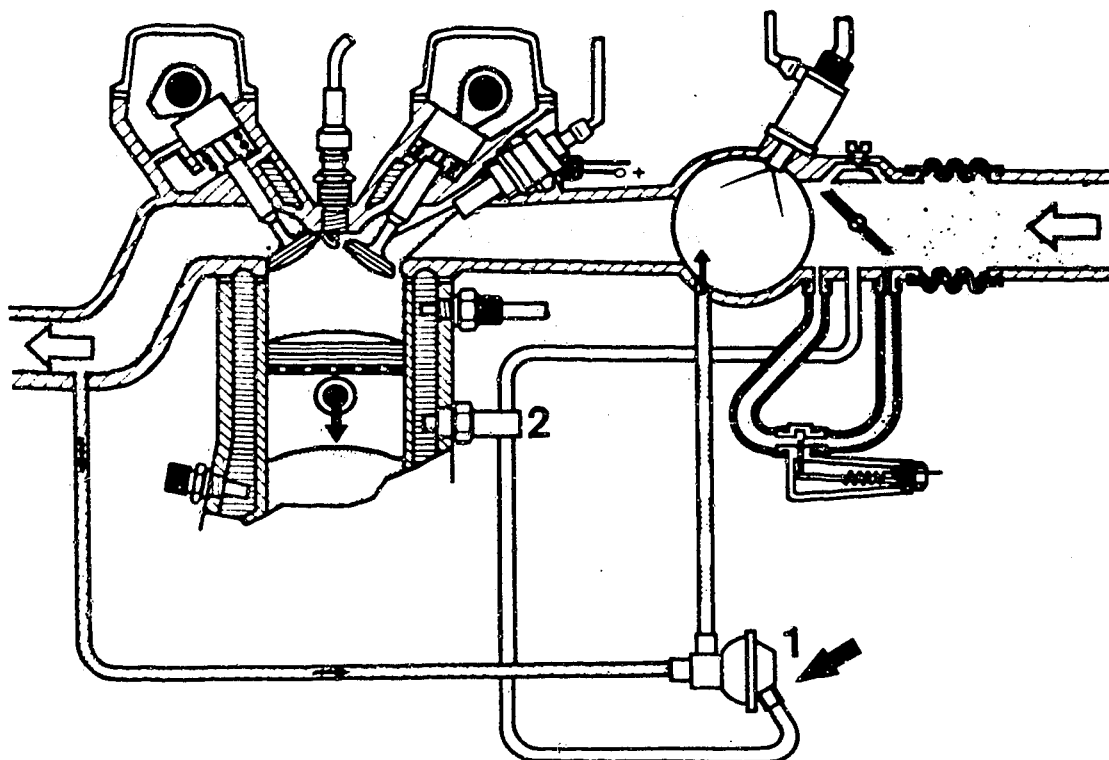
L10

Motor Vehicle Service Information

Peugeot 505 GTI



1. Exhaust-gas recirculation (EGR)



1 = Exhaust-gas recirculation valve 2 = Thermo-valve

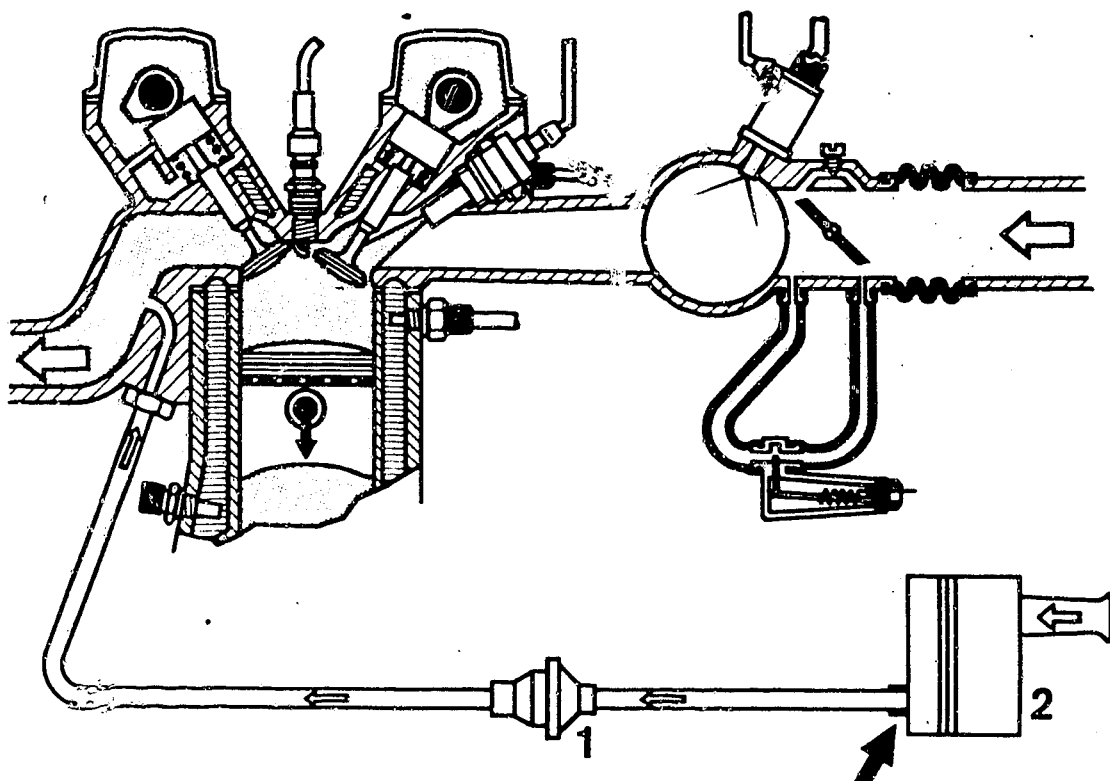
Some of the exhaust gas is returned to the intake manifold via a vacuum-controlled exhaust-gas recirculation valve. This recirculation of exhaust gas into the combustion chamber lowers the combustion temperature and reduces the emission of nitrogen oxides (NO_x). The thermo-valve and the position of the vacuum tapping port on the throttle-valve assembly ensure that exhaust gas is only recirculated when the engine is warm and only at part load. There is a reduction in engine speed of about 200 min⁻¹. Exhaust-gas recirculation is inoperative at idle, full-load and when the engine is cold.

When testing or adjusting the idle speed and CO concentration, remove and seal off the vacuum control line (arrow) on the exhaust-gas recirculation valve in order to ensure that the exhaust-gas recirculation system is inoperative.

In countries without stringent exhaust emission legislation it is not necessary to shut down the system.



2. Secondary-air induction (e.g. Volvo Pulsair system)



1 = Non-return valve

2 = Air filter

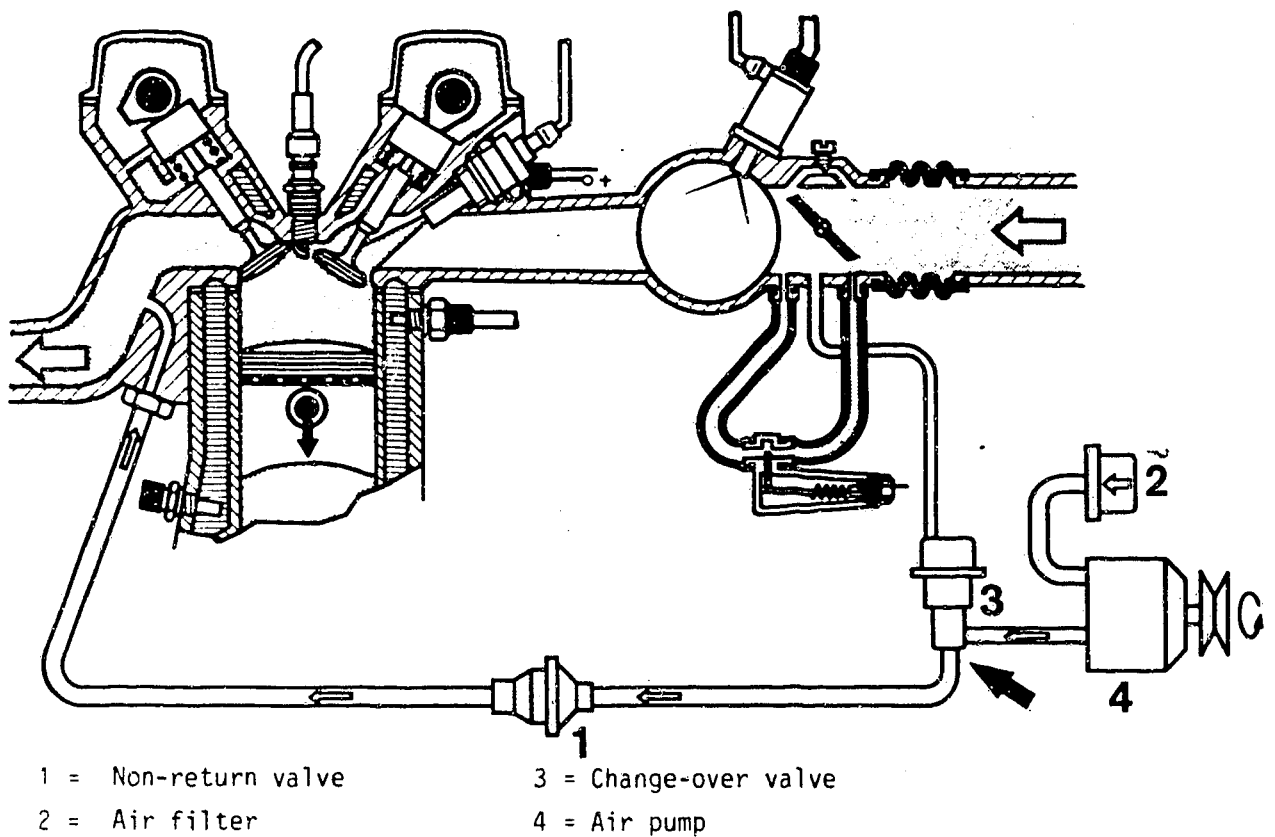
The pulsating alternation between overpressure and depression in the flow of exhaust gas inducts fresh air into the exhaust ports via a non-return valve. Unburned residues of carbon monoxide (CO) and hydrocarbons (HC) are partially after-burned, leading to fewer pollutants in the exhaust gas.

When testing or adjusting the idle speed and the CO concentration, the secondary-air induction system must be rendered inoperative. To do this, remove the hose between the non-return valve and the air filter on the air filter (arrow) and seal off tight with a plug.

In countries without stringent exhaust emission legislation it is not necessary to shut down the secondary-air induction system.



3. Secondary-air injection



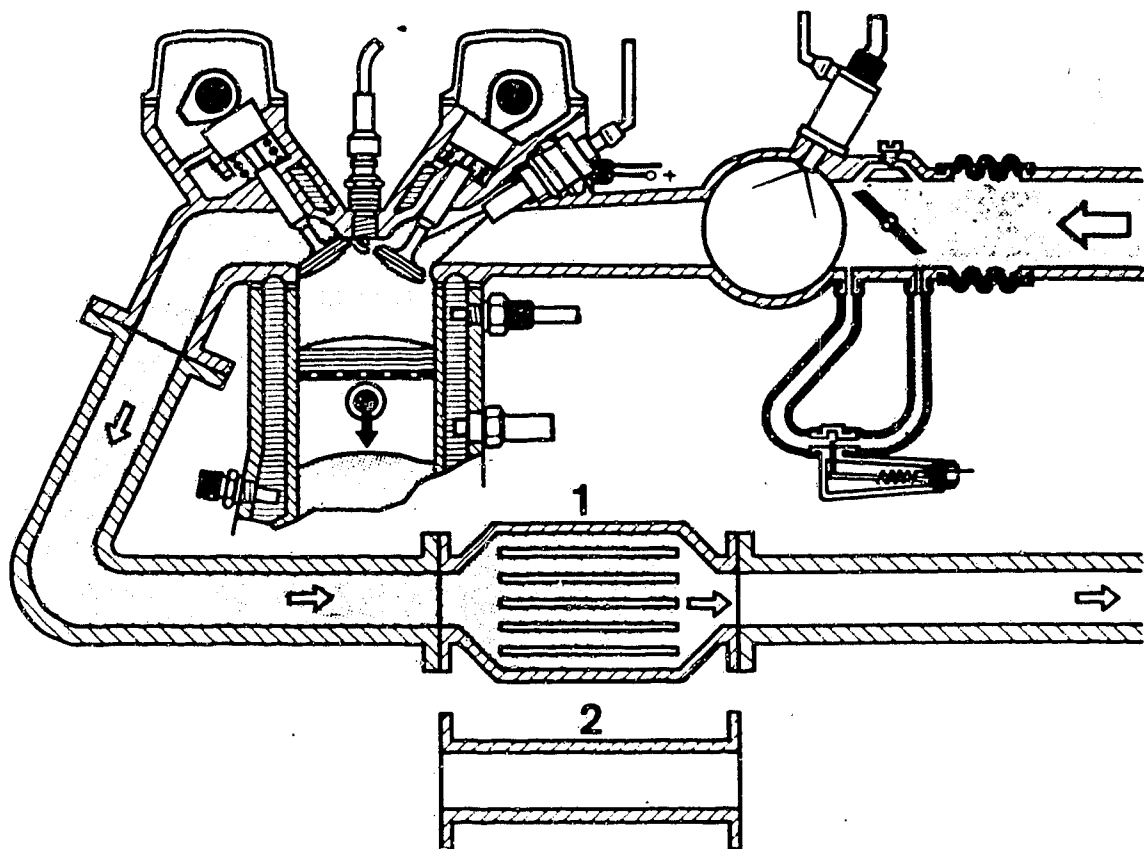
An air pump driven by the engine inducts fresh air through the air filter and forces it via a non-return valve into the exhaust ports. As in the case of secondary-air induction, there is a partial after-burning of the CO and HC residues. This makes the exhaust gas cleaner. A vacuum-controlled change-over valve controls the operation of the secondary-air injection system.

When testing or adjusting the idle speed and the CO concentration, shut down the secondary-air injection system. To do this, remove the hose from the outlet of the change-over valve (arrow) and seal off tight with a plug.

In countries without stringent exhaust emission legislation it is not necessary to shut down the secondary-air injection system.



4. Catalytic converter



1 = Catalytic converter

2 = Intermediate pipe

The single-bed catalyst installed in the exhaust system in export vehicles (also with lambda closed-loop control) reduces all three pollutants CO, HC and NO_x to a minimum. The catalytic surface triggers chemical reactions of the pollutants, rendering them non-toxic.

Important: Proper operation only possible in conjunction with unleaded fuel (at present only in USA and Japan).

When testing or adjusting the idle speed and the CO concentration, the catalytic converter can be neglected since the exhaust-measuring point is upstream of the catalyst.

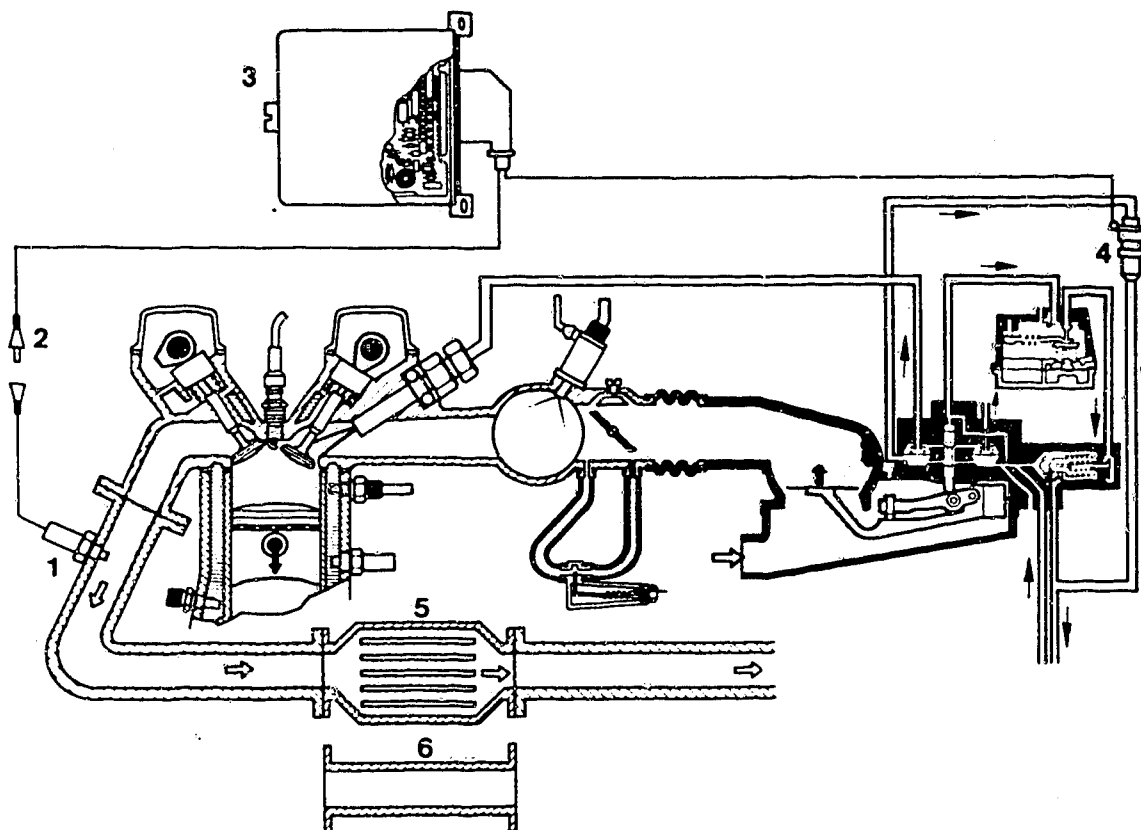
Caution!

If the vehicle is operated on leaded fuel (predominantly in countries without stringent exhaust emission legislation) the catalytic converter must be removed. If not removed, the catalytic converter would become clogged up and lead to a reduction in the power output of the engine.

Appropriate intermediate pipes for converting the exhaust system are available from the vehicle manufacturer.



5. Lambda closed-loop control



1 = Lambda sensor
2 = Plug

3 = Control unit
4 = Timing valve

5 = Catalytic converter
6 = Intermediate pipe

Export vehicles for the USA and Japan are equipped with lambda closed-loop control. This additional function of the K-Jetronic or L-Jetronic is not a downstream emission control system, but ensures a low pollutant content in the exhaust gas by means of optimum mixture preparation. Additional exhaust-gas recirculation, secondary-air induction or secondary-air injection is therefore not necessary in most cases. Like the catalytic converter, the lambda sensor (in the exhaust gas) operates only with unleaded fuel.

If the vehicle is operated on leaded fuel, the lambda sensor becomes clogged up and ceases to operate. The control unit detects this and switches from closed-loop to open-loop control. The system then operates on a fixed air-fuel ratio in the same manner as a K-Jetronic or L-Jetronic without lambda-closed-loop control. Before operating on leaded fuel, the lambda sensor should be removed and the installation hole should be closed off with a screw plug M18x1.5 (length of thread max. 8.5 mm). The disconnected plug (2) of the sensor connecting cable should be insulated and fastened to a suitable place on the vehicle body.

Caution!

Under no circumstances must the control unit or the timing valve be shut down on the lambda closed-loop control of the K-Jetronic.
The catalytic converter should be replaced by an intermediate pipe.

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